Patient Referral and Discharge Systems – Case Studies

CC Research

February 2010
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Summary

- The Discharge/Referral/Patient workflow systems are present in two forms:
  - Privately offered (by independent vendors) and developing towards a collaborative network
  - Government initiatives that trickle down from institution to institution (either regional or national level)

- The government initiatives have edge of over the privately offered ones due to scale, standardization of processes, long term infrastructure stability, search-ability, and regional/national level homogenization of patient-centric care.
  - The Danish government-lead healthcare communication system (MedCom) actually integrates a number of IT systems and vendors for provision of a national-level single source/standard network

- The independent systems and their vendors are making efforts to develop inter-operable systems that can work collaboratively even after using different software platforms.
Patient Discharge/Referral/Workflow Systems

VisionTree Optimal Care (VTOC) – USA

Name of the software: VisionTree Optimal Care (VTOC)
Name of the vendor: VisionTree
Region(s) of operation: USA (purchased and run by various hospitals)
Focus: Web-based patient health management system (highlight – referrals)

Further details:

What does the system do?
VisionTree Optimal Care is a web-based patient health management system for collecting and storing health records, consents, reminders, messaging, education material and outcomes data. VTOC delivers patient and provider/payer communication and documentation through a system that meets the requirements of patient safety, risk management and P4P guidelines, as well as reduces transcription costs¹.

What are the salient features?

Below is a description of the modules that make up VTOC²:

- eRegister™
  - Paperless registration using kiosk, workstation or laptop
  - Progress meter to track status
  - Patient co-pay and payments / installment set-up
- Information Delivery Engine™ (IDE)
  - Auto- Populate Patient's Portal with forms & content for paperless workflow
  - Alerts, Messages & Docs sent and exported based on triggers
  - Physician referral system, dynamic transcription & forms management
- VTOC Data Connect™
  - HL7 compliant interface for bi-directional interchange with legacy EMR/PMS.
  - Import / Export of patient's CCR with disparate electronic data storage systems.
  - Secure connection over VPN, ODBC, or web-service (WSDL).
- Real-Time Aggregated Quality Metrics™ (RAQM)
  - Dashboard for snapshot view of filtered, aggregated outcomes data
  - User analytics for patient task completion and activity
  - Medical team quality of care & productivity metrics
- VTOC Mobile™
  - Secure mobile access to snapshot of patient data
  - Browser-based, no software necessary
  - Supports Windows Mobile, Symbian, Blackberry, iPhone, Palm OS
- VTOC Network™

Referral Network for physicians and healthcare professionals
- One can create Communities, User Groups, Calendar of Events, Messaging, for building up a Health network
- See who your top referrals are

**Implementation details (Institutions/regions involved)**
VisionTree solutions implemented at 80 sites to date. It is claimed that 7 out of top 10 US hospitals use VisionTree solutions.

**Case studies/links:**
- VisionTree™ Software launches Professional Edition; Saint Luke's Hospital (Kansas City, Missouri) implements solution for strategic planning
Patient Placement Systems – USA

Name of the software: Patient Placement Systems – DRS and RMS
Name of the vendor: Patient Placement Systems
Region(s) of operation: USA (purchased and run by various hospitals and secondary care facilities)
Focus: Web-based Referral Management System (RMS) and Discharge Referral Systems (DRS)

Further details:

What does the system do?

Patient Placements Systems offers online healthcare software solutions to track and manage electronic medical records for care referral management and discharge planning, focused on long term care. This is a monthly-subscription based offering.

What are the salient features?

Referral Management System (RMS)3:

Patient Placement designed the low-cost Web-based Referral Management System specifically to fix the fax problem and automate every step of the long-term care admissions process, including:

- Verify insurance from any carrier instantly online.
- Track marketing campaigns and associated activities, and link them to specific referrals.
- Enter a new referral and assign for review in just seconds.
- Identify watch list referrals that require additional review.
- Generate standard admissions and patient forms quickly with patient information already entered.
- Receive instant referral and task alerts by fax, email, online or mobile device.
- Trigger immediate communications to referral sources when accepting a patient.

Discharge Referral System (DRS)4: Online healthcare software for discharge planning to eliminate the fax and accelerate the processes that directly affect patient length of stay.

Some highlights of the DRS online healthcare software system for automating discharge planning and tracking:

- Discharge planners and staff members send, track and archive patient referral documents and electronic medical records online, in real time—replacing long fax or phone waits with the speed and automation of a sleek, hosted healthcare software system
- Submit online, paperless patient referral inquiries and electronic medical records to qualified facilities and providers for smarter discharge planning based on location, payers accepted, or healthcare services provided.
- Receive instant status alerts by email, online or by mobile device, so one can react immediately to ensure efficient discharge planning and fast patient placement while tracking patient referral status.
- Elegant, easy user interface that makes discharge-planning and referral management and tracking quick and hassle-free.

Implementation details (Institutions/ regions involved)

The Discharge Referral System (DRS) online healthcare software securely connects discharge planners with more than 100,000 long-term care providers nationwide (USA), online. (This is what their website claims)

ForeFront Transfer – USA

Name of the software: ForeFront Transfer  
Name of the vendor: Central Logic  
Region(s) of operation: USA (purchased and run by various hospitals and hospital-networks)  
Focus: Patient transfer only

Further details:

What does the system do?

ForeFront Transfer focuses on managing transfers while insuring all information is evaluated before ensuring that all required information is captured before moving forward with any transfer.

What are the salient features?

ForeFront Transfer addresses all the steps required to coordinate an efficient transfer:

- Simultaneous communication with referring facility and accepting physician
- Instantly share data with transport and emergency department
- Integrated provider/patient database
- Suspend the call while verifying bed availability and insurance coverage
- Automated reminders of open calls needing attention
- Web based so multiple entities can view and edit information
- Information is accurate and changes register immediately
- Pages can be sent to any type of receiving device
- Communication tracking and security
- Customized report generation
- Shared calendars and schedules

Implementation details (Institutions/ regions involved)

Central Logic’s ForeFront Transfer has been adopted by many hospitals and hospital networks across USA. Some regions where it has been implemented are: South Florida, Virginia, etc.

ForeFront transfer client mentions:
http://www.centrallogic.com/announce.html

http://www.centrallogic.com/product_transfer.html

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6 http://www.centrallogic.com/product_transfer.html
Covisint Healthcare Solutions – USA

Name of the software: Covisint Healthcare Solutions
Name of the vendor: Covisint
Region(s) of operation: USA (purchased and run by various hospitals and care institution networks)
Focus: Web-based patient health management system (highlight – complete patient workflow solutions within the network)

Further details:

What does the system do?

Covisint’s prospect is: Connecting Healthcare. On Demand⁷.

Covisint works with various physician sponsoring organizations—organizations seeking to provide their physicians innovative communication and collaboration tools, enabling them to provide improved care and manage their practices more efficiently. These organizations include Health Information Exchanges, Physician Associations, National and State-based Associations, entire States, Health Plans and Health Systems.

Covisint connects healthcare communities in the environment known today as cloud computing. Their on-demand solutions and services deliver the results clients need.

The community of users can have on-demand access to applications and information and the tools to communicate and collaborate securely with others across the healthcare continuum.

Major offerings include solutions for:

On-demand security & privacy: Covisint works to manage the identity and authentication of users, and give them access to appropriate applications and information—all through a single log-in, thus providing a centralized, auditable security and privacy framework.

Aggregation of information and data: Covisint users can receive aggregated views of information and data required, such as medication history, lab results and allergies. Even though the data may come from different sources, Covisint users see this information in one centralized view, presented in a comprehensive patient dashboard.

Collaboration & networking: Covisint user community can collaborate and exchange secure e-mail, files and paper images to assist with consultations, referrals, medical management and many other healthcare workflows resulting in improved clinical and administrative information exchange and seamless continuity of care.

What are the salient features?

Covisint provides solutions for all types of healthcare institutions: Health Information Exchanges, Physician Associations, National and State-based Associations, entire States, Health Plans and Health Systems.

- **Health Information Exchanges (HIE):** Covisint's on-demand solutions for HIEs feature:
  - **Collaboration Center:** Enable the community to provide a centralized environment for healthcare professionals in the ambulatory setting to securely communicate with anyone else across the community, request and access selected medical applications that support and ease care
  - **Request/Results Management:** Outsources and improves the secure delivery of labs/radiology results from hospital or hospital’s outpatient labs/radiology centers to physician practices; improves ordering of labs from

physician practices to the hospital or hospital’s outpatient labs/radiology centers; and improves the referral process and delivery of consult reports/results between the hospital’s associated physician practices.

- **Administrative Streamlining:** Enhances provider-to-provider and provider-to-payer revenue cycle workflows for patient registration/insurance verification, utilization/coding, billing/claims, medical management and patient accounting/accounts receivable to improve profitability and cash flow.

- **Attachment/Forms Management:** Secures communicates and exchanges structured and paper-based information required in the payer-to-provider and provider-to-provider processes (e.g., attachments, authorizations, etc.), utilizing fax/fax back, messaging and electronic forms.

- **Ambulatory Integration:** Eliminates duplicate data entry by integrating any existing PMS/EMR with labs, e-prescribe, and other service providers though automated, monitored demographic, scheduling, orders, and results interfaces. Enables the ability to automate the workflow of information delivery with an EMR, or utilizing virtual fax technology. Regardless of the IT adoption level of the office, Covisint can enable the digital transfer of information across all entities.

- **Medication History:** Obtains medication history for each patient visit across multiple sources (e.g., ED or admissions) to meet medication reconciliation requirements.

- **Centralized Clinical Care:** Provides a centralized location to search for patients and clinical documents (lab and radiology reports, admissions notification, discharge summaries, immunizations, etc.) across hospitals, labs, and other providers, including the state.

- **Third-party Data Sharing:** Enables the community to deliver patient-specific clinical information to credentialed and approved third parties to support existing or new patient disease management programs. Information can also be delivered to state, county and federal agencies for the purposes of disease tracking and bio-surveillance.

- **Health Systems and Hospitals:** Covisint’s on-demand offering provides multiple solutions for hospitals and health systems:

  - **On-demand security and privacy:** A solution for managing user identities across health system’s security domains. This allows users to login locally at their health system’s domain, and select from a variety of external services that are all accessible without requiring a secondary login.

  - **Medical Record Requests and Responses:** Manage efficient medical record requests and responses regardless of the medical record system, practice management system or paper chart system being used.

  - **Provider Correspondence:** Improve communication methods between providers and health plans -- enable secure communications, reducing inefficient paper and phone-based processes.

  - **Utilization Review and Prior Authorizations:** Manage utilization review communications and prior authorizations requests and approvals -- supporting clinical documentation included when needed.

  - **Discharge Planning:** Gather paper and electronic-based patient information for referral packets, and communicate with extended care facilities.

  - **Referral Management:** Capture and communicate patient referral information to realize prompt patient care and increased employee productivity.

  - **Lab Outreach:** Maximize return on lab investments through offering electronic ordering and results delivery to your physician community through integration with their PMS and EMR systems.

  - **Order Management and Results Reporting:** Enable well-documented, secure order and results communications. Eliminate missing information and lost or misrouted orders and results.
- **Credentialing**: A paperless solution for managing credentialing information requests and responses between providers and health plans.
- **Claims Attachments**: Enable efficient communications where providers and health plans securely exchange claims attachments requests and responses, increasing revenue cycle capture time.
- **Virtual Fax Services**: Provides a single, internet-based solution to receive, review, route and respond to fax communications, while reducing paper usage and costs.

**Health Plans**: Covisint solutions for Health Plans include:
- **On-demand Security and Privacy**: A solution for managing user identities across a health plans security domains. This allows users to login locally at their plan domain, and select from a variety of external services that are all accessible without requiring a secondary login.
- **Virtual Fax Services**: Provides a single, internet-based solution to receive, review, route and respond to fax communications, while reducing paper usage and costs.
- **Utilization Review and Prior Authorizations**: Manage utilization review communications and prior authorizations requests and approvals -- supporting clinical documentation included when needed.
- **Physician and Clinician Signature Collection**: Enable efficient collection of paper-based or electronic signatures from physicians and other healthcare providers-- improving oversight and eliminating administrative burdens.
- **Credentialing**: A paperless solution for managing credentialing information requests and responses between providers and payers.
- **Internal Communications for Health Plans**: Enable paper-free internal communications and claim adjudications with complete accountability and oversight.
- **Provider Correspondence**: Improve communication methods between providers and payers through a centralized environment.
- **Claims Attachments**: Enable efficient communications where providers and health plans securely exchange claims attachments requests and responses, increasing revenue cycle capture time.

**Physician Groups and Medical Societies**: Solutions feature:
- **Physician Group Branded**: This provides the capabilities to configure the branded "look and feel" of the group's on-demand environment, making your physicians feel right at home.
- **Personalization**: This enables end users to personalize their collaboration space to make it more usable and functional by incorporating desktop themes, "my workspace" tab, gadgets and other 3rd-party widgets, and real-time news feeds (such as healthcarenews.com)
- **User Group/Group Management (UGM)**: This is a built-in framework that enables collaboration efforts, while protecting information by limiting access to authorized users. This tool facilitates the creation, management, and control of public, shared, and private groups within the physician setting.
- **Custom Dashboard**: Covisint's collaboration space brings Web 2.0 technology to support leveraging the applications accessed within the environment (e.g., ePrescribe, eLab) to expose additional applications or aggregated information within a centralized view for the user (e.g., Patient Summary Dashboard).
- **Directed Communications**: This tool facilitates quick and simple communications pipeline, enabling users to target their communications to specific roles and responsibilities (e.g., specific information sent directly to practice managers)
- **Message Center**: Enables users to share private information and messages securely (e.g., performance report cards) between groups and providers. The message center utilizes an easy-to-use folder structure, inbox status, and inbound fax support that provides the capability to send faxes directly into a user’s inbox.

- **Patient File Exchange**: This tool provides access to the users’ directory with capabilities to create groups of users for accessing and sharing patient, office, or practice-specific files. Covisint provides trusted security and control, protecting the confidentiality, integrity, and availability of data.

- **Patient List Management**: This tool manages the list of patients within the physician office and coordinates the patient data across multiple applications. As a result, office users save time from reduced login, re-entering, and/or finding patients across multiple applications. Each office, within the group, has an option of integrating their practice management systems to feed data or have a patient entry screen with their environment. With patient ID synchronization, new or updated patient information can be synchronized across multiple applications. Patient context integration with search provides the capability for physicians to search and select a patient and launch multiple applications directly to a specific patient’s record.

- **On-demand Security and Privacy**: Allows for secure, single sign-on access for applications and websites leveraged by the physician community.

- **State & Federal Government**: Covisint can automate the completion of manual forms and authorization workflows - driving provider access through a single point for both structured and unstructured transactions/claims:
  - **On-demand Security and Privacy**: A solution for managing user identities across a State’s security domains. This allows users to login locally at their domain, and select from a variety of external services that are all accessible without requiring a secondary login.
  - **Claims Attachments**: Enable efficient communications where providers and health plans securely exchange claims attachments requests and responses, increasing revenue cycle capture time.
  - **Utilization Review and Prior Authorizations**: Manage utilization review communications and prior authorizations requests and approvals -- supporting clinical documentation included when needed.
  - **Physician and Clinician Signature Collection**: Enable efficient collection of paper-based or electronic signatures from physicians and other healthcare providers -- improving oversight and eliminating administrative burdens.
  - **Provider Correspondence**: Improve communication methods between providers and health plans -- enable secure communications, reducing inefficient paper and phone-based processes.

- **Extended Care Facilities (ECF)**: Covisint enables extended care facilities (secondary care facilities, etc.) to deliver improved and highly secure communications with healthcare systems, hospitals and health plans. The features include:
  - **Referral Management**: Respond to referrals faster -- capture and communicate patient referral information in a paper-free environment, increase your census, eliminate productivity loss, repeated call backs to referral sources and delays in care.
  - **Internal Communications**: Expedite inter-office communications -- share all critical information between all your facilities and corporate offices. Link facilities across your network, enabling the sharing of documents and monitoring of processes from any location.
  - **Discharge Planning**: Receive and respond to paper and EMR-based referral packets from health systems and hospitals. Enables paper-free admissions processing and improves your census.
- **Utilization Review and Prior Authorizations:** Request authorizations and manage health plan communications -- eliminate the problem associated with authorization management, including slow communication cycles and lost papers.

- **On-demand Identity Management:** Identity and access management solutions

*Implementation details (Institutions/ regions involved)*

Claims made upon usage of Covisint network:

- 90,000+ organizations
- 200,000+ logins daily
- 250,000+ federations daily
- 13,000,000+ messages monthly

Covisint Healthcare Case studies link:
Connect IQ – USA

Name of the software: Connect IQ
Name of the vendor: Kryptiq
Region(s) of operation: USA (purchased and run by various hospitals and hospital-networks) (highlight – secure-messaging solutions and patient portal network as the top products)
Focus: Secure Messaging, Document Management software, etc. – However, look to focus on more on the operations of a single facility (or a limited number of facilities)

Further details:

What does the system do?

Connect IQ facilitates an open collaborative network for healthcare. The Connect IQ Suite allows physicians to build on existing investments in practice management, EHR and HIE systems. For those without a current technology platform, Connect IQ allows physicians to share information simply, by eliminating unreliable paper-based workflows.

What are the salient features?

Physicians use Connect IQ as part of the nationwide network to mobilize vital healthcare data with software such as secure messaging, patient portal, ePrescribing, patient revenue capture and document management.

Connect IQ® Suite has the following offerings:

- **Connect IQ® Secure Messaging:** Connect IQ Secure Messaging improves communications among physicians, their colleagues and patients, replacing outdated manual paper, phone, and fax communications.
- **Connect IQ® Patient Portal:** Streamline communications with patients and give patients round-the-clock access to portal services including online patient enrollment, online appointment requests, and eVisits. Facilitates viewing registration and key clinical data online, Patient entry of pre-visit data, and structured secure communications with the practice.
- **Connect IQ® Document Management:** Enables clinic staff to easily scan, index and store paper patient documents to an electronic database or system of record, such as a Practice Management (PM) or Electronic Health Record (EHR). As a standalone application, Document Management improves paper management within the clinic and can serve as a first step towards electronic health records management.
- **Connect IQ® Appointment Reminders:** This keeps physician schedules full and the patients well-informed by reminding patients of upcoming scheduled appointments and notifying waitlisted patients when cancellations occur.

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8 [http://www.kryptiq.com/about](http://www.kryptiq.com/about)
• **Connect IQ® Online Patient Billing**: Online patient billing solution that includes eStatements and Web-based online bill pay.

*Implementation details (Institutions/regions involved)*

More than 30,000 physicians use products in the Connect IQ® suite, as part of this nationwide network (USA).¹⁰

Some of the case studies from Kryptiq may be found at:

http://www.kryptiq.com/provider-solutions/customers


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¹⁰ [http://www.kryptiq.com/about](http://www.kryptiq.com/about)
RMD Networks – USA

Name of the software:  RMD Networks  
Name of the vendor:  Kryptiq  
Region(s) of operation:  USA (Used by various hospitals, hospital-networks, patients, payers, pharmaceutical companies)  
Focus:  Collaborative Network which shares and tracks information online, across the healthcare system (highlight – internet browser based and easy)  

Further details:

What does the system do?

RMD Networks’ web-based collaborative care software, web services and networks enable timely and effective interactions between patients and physicians to strengthen the clinical care process and the clinical community. Their Collaborative Care Network™ is the communication and care space for community of physicians, patients, clinical partners, payers and pharmaceutical manufacturers.

What are the salient features?

The components of the Collaborative Care Network include:  security, directory management, workflow, structured messaging, reminders/notifications, integration services and reporting. All of this is accessible through a standard Internet browser.11

11 http://www.rmdnetworks.com/whatWeDo/index.htm
RMD Networks connect provide solutions for the usage of all entities across the healthcare system: Payers, Pharmaceutical Companies, Hospitals, Physicians, and Patients. Out of these, solutions used by Hospitals and Physicians appear to be most relevant here.

**Hospital Solution**

Collaborative Care Network

Participating physicians and patients are connected to the Collaborative Care Network allowing them to establish an electronic relationship for distribution of results and reports. The network can be used to communicate critical information to credentialed practices, submit orders and provide a secure means to exchange information between their hospitalists and the primary care physicians.

ReachMyDoctor

The ReachMyDoctor service is a method for their patients to complete pre-registration online and schedule screening exams and tests on a self-service basis.

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12 [http://www.rmdnetworks.com/community/hospitals.htm](http://www.rmdnetworks.com/community/hospitals.htm)
**Hospital Before**

- On hold too long at practice
- Can't read the order form
- Need practice information before completing process
- Never received the information
- Multiple systems & practices with different needs - difficult to keep track

**Before:**
- Why are there so many paper forms to complete?
- Why can't I complete information before I come to the hospital?
- Why do I have to wait on hold so long?

**RMD Value to Hospitals**

**Benefits:**
- Same delivery method to all practices
- Tracking & archive mechanism
- Coordinated information & streamlined workflows that extend out to disparate care settings and practices
- Establish proactive relationship with patient community

**Benefits:**
- Conveniently pre-register online
- Reduce dependency on phone

**Benefits:**
- Single point of access for all hospital information
- Reduce time on phone
- Reduce dependency on fax and paper
Physicians and their staff can join the Collaborative Care Network to:

- Securely communicate with other physician practices regarding shared patients
  - Request medical records information
  - Exchange clinical results
  - Consult electronically with their colleagues
  - Make referrals
  - Access clinical data from multiple sources
  - Monitor & share care plans for chronically ill patients

- Participation of physicians on ReachMyDoctor
  - Allows patients to contact physician’s office for administrative issues
  - Allows communication with their patients regarding clinical issues
  - Facilitates Telemonitoring & management of chronically ill patients

*Implementation details (Institutions/regions involved)*

NA.

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Choose and Book – NHS, UK

Name of the system: Choose and book
Name of the vendor: XX
Region(s) of operation: United Kingdom
Focus: Patient referral and appointment booking (highlight – national level govt. initiative)

Further details:

What does the system do?

NHS Connecting for Health: NHS Connecting for Health supports the NHS in providing better, safer care, by delivering computer systems and services that improve how patient information is stored and accessed.

Systems and Services: are helping the NHS to deliver new computer systems and services to improve patient care and safety.

One of the main services provided by NHS is the “Choose and Book” facility.

Choose and Book is a national electronic referral service which gives patients a choice of place, date and time for their first outpatient appointment in a hospital or clinic.14

What are the salient features?

Choose and Book is a service that allows one to choose their hospital or clinic and book an appointment with a specialist. When a patient and his/her GP agree that the patient needs to see a specialist, they will be able to choose from a list of hospitals or clinics. They will also be able to choose the date and time of their appointment.15

Implementation details (Institutions/regions involved)

Choice may be made out of any hospital in England funded by the NHS (this includes NHS hospitals and some independent hospitals).

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15 [http://www.chooseandbook.nhs.uk/patients](http://www.chooseandbook.nhs.uk/patients)
EMIS Web – UK

Name of the software: EMIS Web
Name of the vendor: Egton Medical Information Systems Ltd (EMIS)
Region(s) of operation: United Kingdom
Focus: Seamless access to shared patient records (highlight – biggest vendor to NHS program across UK)

Further details:

What does the system do?

EMIS Web enables seamless access to shared patient records, with patient consent, for GPs, extended care, secondary care – in short anyone directly involved in patient care.

EMIS Web is a significant part of the Network care that NHS is focusing upon.16

Figure 1 Network care in NHS, UK

What are the salient features?

- **EMIS Web for GPs:** Several major modules of EMIS Web have been completed and are being used by a number of practices throughout the UK:
  - **care record viewer** – enabling clinicians to quickly take in all the relevant information about a patient, vital during consultations
  - **new appointments module** – with advanced planning capabilities such as advanced rota management, week ahead and month ahead planning
  - **word processor integration** – enabling users to create and edit EMIS Web document templates, which can be used for mail merge from search populations and for appointment letters
  - **patient administration module for non-GP organizations** – enabling referral, case and waiting list management and reporting
  - **search module** – including simplified reporting modules, which make both practice based and Enterprise wide reporting fast and easy
  - **data entry templates** – advanced data entry templates can be created by organizations to manage patient care and shared with other organizations for data consistency.

- **Information anytime, anyplace, anywhere:**
  - The aim of EMIS Web is to put key information at the fingertips of those who need it, when they need it most.
  - Extended care providers benefit from instant access to up to date critical patient information held by the patient’s GP, such as allergies, current medication and test results. Similarly, GPs can view details recorded by other healthcare professionals involved in the patient’s care, such as community nurses, minor surgery clinics and out-of-hours clinicians.
  - Primary Care Trusts (PCTs) will benefit from EMIS Web’s search and reports capabilities, giving them fast access to data on healthcare issues across the area such as uptake of childhood immunizations.
  - Consent must be given by the patient before a clinician accesses shared data.
  - The system exchanges data securely with third party healthcare software, adding information recorded by other systems, such as Adasta. Data held in EMIS LV or PCS systems is seamlessly streamed to the EMIS Web database, for the benefit of extended care providers.

**Implementation details (Institutions/ regions involved)**

Over 59 per cent of GP practices in England and 52.5 per cent of practices across the UK use EMIS software, a mixture of LV, PCS and EMIS Web systems.

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18. [http://www.emis-online.com/emis-web](http://www.emis-online.com/emis-web)
Medisec Software – UK

Name of the software: MedisecNET, MedisecEReferrals, MedisecEDischarge
Name of the vendor: Medisec Software
Region(s) of operation: UK (across the Midlands and the North of England)
Focus: Electronic clinical document generation and communication (highlight: used by patient trust across regions in England for both discharge and referral)

Further details:

What does the system do?

Medisec Software supplies a range of software systems which generate patient documents and communicate them electronically between hospitals, GP surgeries and other health agencies, such as Social Services.

What are the salient features?

Medisec’s range of software systems:

- **MedisecTRUST**: generates clinical correspondence in hospitals in Microsoft Word for electronic delivery to GP surgeries
- **MedisecTRUST Reporting Module**: allows secondary and primary healthcare trusts to measure how long it is taking to forward clinical correspondence from hospitals to GPs
- **MedisecNET**: allows the hospital to send electronic clinical correspondence directly to GP surgeries and for GPs to access real-time patient information from the hospital
- **MedisecEReferrals (Social Services)**: allows the hospital to make electronic referrals to Social Services teams at any time of day or night
- **MedisecEReferrals (GP)**: allows GPs to make secure electronic referrals to hospitals
- **MedisecEDischarge**: allows the hospital to share vital clinical patient information with GPs at the time of patient discharge

Implementation details (Institutions/ regions involved)

Medisec software is installed at various NHS Hospital Trusts, Primary Care Trusts and Local Health Boards and within Social Services across the Midlands and the North of England.

Clients:

Clients - NHS Hospital Trusts: Medisec Software is installed in the following NHS Hospital Trusts:

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19 [http://www.medisecsoftware.co.uk/html_files/products.htm](http://www.medisecsoftware.co.uk/html_files/products.htm)
20 [http://www.medisecsoftware.co.uk/html_files/clients.htm](http://www.medisecsoftware.co.uk/html_files/clients.htm)
21 [http://www.medisecsoftware.co.uk/html_files/clients.htm](http://www.medisecsoftware.co.uk/html_files/clients.htm)
Clients - Primary Care Trusts: Medisec software is installed in the following Primary Care Trusts and Local Health Boards:

- Manchester Primary Care Trust
- Western Cheshire Primary Care Trust
- Central and Eastern Cheshire PCT
- Flintshire Local Health Board

Clients - Social Services: Medisec software is installed within the following Social Services:

- Flintshire Social Services
- Cheshire Social Services

Some interesting facts about Medisec Software:

- Medisec products save the Countess of Chester Hospital NHS Foundation Trust around 17,000 administration hours every year, equating to a saving of over £100k
- 3,500 healthcare professionals use Medisec products nationwide
- Over 2 million documents are generated and transmitted annually
- Medisec products save secretarial staff up to 60% of their average working day
- Medisec Software has played a vital role in reducing bed blocking for patients requiring social service at the Countess of Chester hospital
- Works with existing PAS and GP systems

Product Brochures:
http://www.medisecsoftware.co.uk/PDFs/productrange.pdf
http://www.medisecsoftware.co.uk/html_files/products.htm

Client testimonials:
http://www.medisecsoftware.co.uk/html_files/testimonials.htm

Case studies:
http://www.medisecsoftware.co.uk/html_files/casestudies.htm

22 http://www.medisecsoftware.co.uk/html_files/about_fastfacts.htm
POINT – The Netherlands

Name of the software: POINT
Name of the vendor: Techxx; (POINT has also integrated with Chipsoft CS-Care Portal in some regions)
Region(s) of operation: Den Haag and Delft Westland Oostland
Focus: Transmural patient transfer only

Further details:

What does the system do?

POINT helps in the keeping and sharing the status and records of patient transfers between healthcare facilities (e.g., primary and secondary) with capabilities on a regional scale. It acts as a point of reference for all entities involved to know the status of transfer of a patient between several hospital settings.
What are the salient features?

Some of the important advantages of POINT are:

- POINT relieves administrative burden of transfer which helps nurses to spend more time and attention towards patient-care
- POINT reduces errors because the number of manual operations reduce significantly
- Helps in accessing patient data directly from the Hospital Information System (ZIS)
- Tracking and tracing information about the transfer process of a patient for all concerned parties is available at any time
- Keeps updated record of available places with several affiliated health care facilities

http://www.verzorgdeoverdracht.nl/POINT/Pages/default.aspx
Implementation details (Institutions/regions involved)

Regions: Den Haag and Delft Westland Oostland

POINT was deployed in the Den Haag region by the Stichting Transmurale Zorg Den Haag for handling transfer of patients in the region in August 2007. In March 2008, POINT was deployed in the Delft Westland Oostland region. There is a link with the hospital information system CS-EZIS from Chip Soft. Using the digital workflow system with POINT, around three thousand patients per year are transferred from hospitals to other care settings in the Delft region.

In August 2008, Vlietland hospital in Schiedam adopted POINT for patient transfer. The hospital argues that the full digitization of the transfer of patients will have a positive impact on the transition of patients from the hospital for further care in the region around Schiedam, Vlaardingen and Maassluis.

CS-Care Portal is a Chip Soft product that enables hospitals to better support transmural care—data from the CS-EZIS (electronic health information system) is directly available through CS-Care Portal.

In December 2008, Techxx unified CS-EZIS, and the Medical Center of ZIS Haaglanden (CIZ) through POINT. By linking with EZIS of Chip Soft, employees’ time to enter Personal Data and making mistakes while transfer is saved.

26 http://www.ictzorg.com/home/nieuw/1383/vlietland-ziekenhuis-neemt-point-voor-patienttransfer
27 http://www.emea.nl/?p=25862
PVS – The Netherlands

Name of the software: PatientVolgSysteem (PVS)
Name of the owner: Zorgnetwerk Midden-Brabant (ZMBR)
Region(s) of operation: Midden-Brabant
Focus: Transmural patient transfer only

Further details:

What does the system do?
The Patient Monitoring System (PVS) is a web-based portal for record-keeping of patient activities. It gives insight into the physical flow of patients and capacity for each institution in the chain and / or patient category.

What are the salient features?

- The registration on PVS gives the management inputs on:
  1. the flow of patients from hospital settings to other care faculties
  2. the delaying factors in the flow
  3. how to influence the procedures to promote the flow
- Each party has direct access to the accurate and timely logistics information of the patient.
- It is designed to ensure transparency in information about patients and institutions in the chain.

Implementation details (Institutions/ regions involved)
Region: Midden-Brabant
Initially, PVS was deployed within the stroke care, but is now used in maintaining orders all patient groups from the hospital to a continued care system.
Zorgdomein – The Netherlands

Name of the system: Zorgdomein
Name of the vendor: XX
Region(s) of operation: The Netherlands
Focus: Online Patient Referral System

Further details:

What does the system do?

ZorgDomein facilitates the GP with all the referral-protocols which are gathered in ZorgDomein: an ICT referral-application which electronically facilitates all steps in the referral process\(^{28}\).

What are the salient features?

The internet-referral-application ZorgDomein improves the synergy of demand and supply between primary and secondary care. The working method behind ZorgDomein comprises general practitioners and medical specialists standardizing their common work-ground by developing medical as well as logistic protocols for all referral indications\(^ {28}\).

Some results obtained\(^ {28}\): Effects were measured in several regions.

- Main results are a reduction of the unnecessary hospital visits (up to 60%),
- A reduction of unnecessary urgent-referrals (up to 59%) and
- A reduction of second and third consultation visits to specialists (up to 45%).
- Furthermore hospitals had shorter access times and could increase productivity.
- The advantages for the general practitioner are the insight in access times between hospitals, rapid feedback after referral and reduction of unnecessary telephone calls.
- For the medical specialist the big advantages are better informed patients and the reduction of preventable consults.
- From the patients point of view optimization of the synergy between primary and hospital care has resulted in better informed patients, reduction of preventable hospital visits, better informed specialists and generally the experience of a ‘closed chain’ between primary and secondary care.

Implementation details (Institutions/regions involved)

The method is introduced in 18 regions of the Netherlands with over 30 hospitals and approximately 3,000 general practitioners (GP’s)\(^ {28,29}\).

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\(^{28}\) [https://www.zorgdomein.nl/zorgdomein/opencms/www/home/english.html](https://www.zorgdomein.nl/zorgdomein/opencms/www/home/english.html)

Some useful links:

Electronic Discharge Referral System – New South Wales, Australia

Name of the system: Electronic Discharge Referral System
Name of the vendor: Cerner Corporation (US based)
Region(s) of operation: New South Wales, Australia
Focus: Discharge Referral System (highlight – regional level govt. initiative)

Further details:

**What does the system do?**

The Electronic Medical Record (eMR) is a multi-year program to replace the paper medical record with an online record which tracks and details a patient’s care during the time spent in hospital\(^30\). The eMR is a key component of NSW Health’s Information, Communications and Technology (ICT) Strategy and is aligned with the whole-of-government approach to information technology\(^31\).

The applications currently being implemented are:

- **Electronic Results**: will allow test results and reports from diagnostic services to be viewed at the clinical workstation. Examples include radiology reports and laboratory results.
- **Electronic Orders**: enables clinicians to order tests, procedures and services online. Examples include pathology, medical imaging, allied health and dietary orders.
- **Electronic Discharge Referral System**: provides a summary of the patient’s care, which can be transmitted electronically to providers like General Practitioners to support ongoing care in the community.
- **Emergency Department System**: information specific to emergency care to allow the efficient management of the department and patients. It includes triage information, presenting problems, treatment times, interventions, and more.
- **Operating Theatre System**: a system to manage the coordination of patients, surgeons, anesthetists, equipment and rooms, and report on utilization.
- **Enterprise Scheduling**: a system to coordinate scheduling of resources across an integrated set of information systems in a single view. Resources include patients, providers, locations and equipment.

**What are the salient features?**

The Electronic Discharge Referral System is integrated in the overall Cerner Millennium eMR solution. The eMR is a single database where patient details are entered once and accessible to all clinicians anywhere in the hospital provided they have authorized access security access. Information gathered about the patient from many service departments can guide clinical decisions through the use of rules and alerts. This single view of patient details facilitates good communications between departments and clinicians and eliminates duplication of information.

Major features of the Electronic Discharge Referral System include:

• **Discharge Templates**: Standard templates will be provided as part of the State Base Build (SBB) process. This customized approach assists the care team to consider specific discharge requirements for their specialty. Specialist templates will be developed in future SBB work as functionality becomes available.

• **Access to patient and clinical information**: The eMR is a single database and previously entered details will automatically be available for populating the discharge referral. This eliminates errors in copying data and saves time.

• **Preparing for discharge**: The discharge referral can be commenced at the earliest point of the patient stay and progressively completed as the date approaches. This advanced planning assists with communications between the care teams and reduces the effort to complete the process on discharge.

• **Follow-up appointment and instructions**: The discharge referral system has access to follow-up appointments and can include free text instructions.

• **Distribution**: The system can deliver the discharge referral by a number of means, including electronically, fax or printed copy. There is also the facility where consent has been given to notify the GP of a patient’s discharge or death.

• **Designed for the way govt. delivers care**: A State Build process will be used to configure the application with standard codes, templates, extracts and work processes. Each Area Health Services will have the opportunity to participate in the development of the State Build by attending a series of workshops to provide input. A clinical advisory group will endorse recommendations from these workshops. The application’s design will also be influenced by the findings of the clinical re-design work on functions to improve patient flow and outcomes.

*Implementation details (Institutions/ regions involved)*

Over the next three years (2009-10 onwards), approximately 84,000 clinicians and scientific staff in up to 88 public hospitals in New South Wales will start using the eMR.
MedCom – Danish Healthcare Communication Network

Name of the system: MedCom
Name of the vendor: A number of vendors involved
Region(s) of operation: Denmark (highlight – govt. initiative for comprehensive connected health in the country and even beyond, e.g., Baltic region)
Focus: Single portal for management and access for all clinical information throughout the country

Further details:

What does the system do?

Purpose of MedCom: “The purpose of MedCom is to contribute to the development, testing, dissemination and quality assurance of electronic communication and information in the healthcare sector with a view to supporting coherent treatment, nursing and care.”

MedCom is a national healthcare data and information network for enabling secure electronic communications between all actors in the health and social care sectors in Denmark. MedCom was founded in 1994 to lead on the development of national EDI standards for the most frequently exchanged messages between the primary and secondary healthcare sector. Since then its role has been significantly expanded and the network now contributes to the development, testing, dissemination and quality assurance of all electronic communication across the Danish healthcare sector.

What are the salient features?

- MedCom is financed by:
  - Ministry of Health
  - Ministry of Social Affairs
  - Danish National Board of Health
  - Danish Regions
  - Copenhagen Hospital Corporation
  - Association of Local Authorities in Denmark
  - Danish Pharmaceutical Association
- 60 IT vendors with 100 IT systems that communicate nationwide across sectors

• MedCom's messaging systems are used in the following areas:

1) **ePrescriptions**: from primary care doctors (GPs and doctors on call);
2) **eReimbursement**: to public insurance from GPs, doctors on call, specialists, pharmacies and dentists;
3) **eDischarge letters and referrals**: between hospitals and specialists, physiotherapists and GPs;
4) **eLab requests and results**: between GPs and specialists and laboratories (in both state and private hospitals);
5) **ePathology and microbiology requests and results**: between GPs and specialists and laboratories;
6) **eRadiology requests and results**: between GPs and specialists and hospitals;
7) **eCorrespondence**: free text letters between parties; and
8) **eMunicipality**: administrative and clinical messaging between hospital and community care centers.

Some results of the Danish healthcare connectivity:

• Today, more than 70 organizations within healthcare is connected to the IP-based Health Data network:
  o All hospitals
  o All pharmacies
  o All GPs
  o All municipalities (homecare, preschool care)
  o A large number of private hospitals and IT vendors
• Today there are more than 1600 agreements in the system - each one replacing a point to point VPN connection
• Services on the Health Data Network today is:
  o Laboratory results
  o Online access to RIS and PACS
  o Video conferencing
  o Online access to patient data across regions (The SUP project)
• Connections to Norway, Sweden and two Baltic hospitals through the Baltic eHealth project.
• Backbone for the national eHealth portal for citizens Sundhed.dk

**Implementation details (Institutions/ regions involved)**

Mentioned above in Results

Some important links: