



Based in New York and founded in 1993, ZyDoc (www.zydoc.com) is a profitable medical knowledge management company. It has a fast-growing base of 4,000 physicians. ZyDoc offers a range of services, with its new MediSapien© product tailored specifically to assist ZyDoc clients and partners to meet the new standards and requirements that are transforming the health care industry.

ZyDoc has developed MediSapien to assist hospitals and other providers of medical care, and the technology vendors that support them, in the transition to EHR meaningful use. MediSapien enables the performance of various data conversion and storage functions that help satisfy current and projected transition needs.

The multifaceted health care industry is going through a highly complex transition. Fundamental economic forces and far-reaching governmental requirements are accelerating the move toward electronic medical records. With the recent emergence of new standards, the use of unstructured data will give way to an absolute need for structured data for interoperability. Standalone silos containing proprietary data types will be transformed by the interoperability requirement to share data across multiple different constituencies using common vocabularies and transfer protocols. Standardized terminology will power health care analytics and result in better outcomes at lower costs.

Through the use of natural language processing and various supplemental patent-pending technical steps, MediSapien converts unstructured text from a variety of sources to SNOMED-CT and the other structured medical terminologies listed below. MediSapien can be delivered either by a software-as-a-service (SaaS) model or on-site installation. The associated services can be applied to unstructured text produced from new patient encounters or to previously stored legacy documentation. Documents submitted for MediSapien coding are processed immediately, which results in "Live" turnaround time.

Data Sources. Sources from which MediSapien can accept unstructured text include the following:

- Electronic Records: HIS, EHR, PACS¹, RIS²
- DICOM reports
- CDA Documents
- Paper documents
- Electronic text documents
- Dictation

¹ Picture Archiving and Communication System

² Radiology Information System

Structured Data Usage. MediSapien processes unstructured data to generate structured data that is available for:

- inserting into an electronic record EMR, RIS, or PACS system;
- transmitting through an HIE³;
- accessing on-line via MediSapien's web interface for coding, billing and/or review purposes; or
- delivering to a data repository housed by the client, the client's technology provider, or MediSapien

Terminologies. MediSapien converts unstructured text to these medical terminologies (*See Figures 1-5*):

- SNOMED-CT
- ICD-9-CM
- ICD-10-CM (coming soon)
- CPT-4
- RxNorm
- LOINC


Clients. Prospective clients for the MediSapien services include the following organizations:

- Large hospital systems
- Academic teaching hospitals
- Acute-care hospitals and surgical centers
- HIEs
- Health care providers in tandem with their technology partners and integrators
- Clinicians
- EMR vendors
- RIS/ PACS (vendors)
- Medical transcription service providers
- Medical billing providers
- Health analytics companies

³ Health Information Exchange

Figure 2. ICD-9-CM (ICD-10-CM coming soon)

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MediSapient™ is a web-based platform developed by ZyDoc that utilizes NLP technology to convert unstructured text into structured, coded data for EMRs and data repositories.

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Developed by The ZyDoc Corporation
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888-296-5221
www.zydoc.com
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ICD-9 Coding

Type: *ON*

Job ID: *129096*

Date of Service: *8/25/2010*

Patient Last: *Cardiology*

Patient First: *Test*

Patient MI: *A*

Patient DOB:

[SNOMED](#)

[CPT-4](#)

[RXNORM](#)

[LOINC](#)

August 25, 2010.

objective:

.

history of present illness:

The patient presents today for follow-up. He was recently discharged from _____ Hospital. He had presented with shortness of breath and generalized fatigue. A stress test was negative. Echocardiogram revealed mild AS with preserved LV function. The patient was found to be significantly **hypertensive** and medications were adjusted. Unfortunately Coreg was unable to be increased given his low heart rate. He went down to the 30s at times at night. The patient has been seen by visiting nurse, who states his blood pressures run from 160-180s at home.

current medications:

Coreg 3.125 mg b.i.d., Wtorm 10/20 mg every other day, Glucotrol 10 mg daily, dioxin 0.125 mg daily, losartan 100 mg daily, Plavix 75 mg daily, Pepcid 20 mg daily, insulin, Lantus 25 units daily, Norvasc 10 mg daily, Lasix 40 mg daily, potassium 20 mEq daily.

physical examination:

General appearance: The patient is alert and oriented in no acute **distress**. Blood pressure: 170/90. Pulses: 70. Respiratory Rate: 18. Neck: No noted **JVD**. Lungs: Clear to auscultation bilaterally. Heart: S1 and S2 with a positive **systolic murmur**. Abdomen: Soft, nontender, nondistended. **Extremities:** No **lower extremity edema**.

assessment:

1. **Hypertension** 2. **Coronary artery disease** 3. **Aortic stenosis** 4. **Dyslipidemia** 5. Diabetes.

plan:

The patient will be started on clonidine 0.1 mg b.i.d. He will follow up in 1 week for a repeat blood pressure check. Results of the stress test and echocardiogram and laboratory data were reviewed with patient at length. Recent cholesterol was 100 with an LDL of 60, HDL 25, and triglyceride of 77.

history of present illness:

401.9 Unspecified essential hypertension

physical examination:

781.99 Other symptoms involving nervous and musculoskeletal systems

362.37 Venous engorgement of retina

785.2 Undiagnosed cardiac murmurs

782.3 Edema

assessment:

401.9 Unspecified essential hypertension

447.9 Unspecified disorders of arteries and arterioles

424.1 Aortic valve disorders

272.8 Other disorders of lipid metabolism


ICD-9 Code Database Search

Words: 268 Characters: 2873

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Figure 3. CPT-4®
 CPT4®, copyright American Medical Association

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Medisapient™
Medical Knowledge Management Software

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CPT-4 Coding

Job ID: **129096**

Type: *ON*

Date of Service: *8/25/2010*

Patient Last: *Cardiology*

Patient First: *Test*

Patient MI: *A*

Patient DOB:

[SNOMED](#)

[ICD-9](#)

[RXNORM](#)

[LOINC](#)

August 25, 2010.

objective:

history of present illness:
 The patient presents today for follow-up. He was recently discharged from _____ Hospital. He had presented with shortness of breath and generalized fatigue. A stress test was negative. **echocardiogram** revealed mild AS with preserved LV function. The patient was found to be significantly hypertensive and medications were adjusted. Unfortunately Coreg was unable to be increased given his low heart rate. He went down to the 30s at times at night. The patient has been seen by visiting nurse, who states his blood pressures run from 160-180s at home.

current medications:
 Coreg 3.125 mg b.i.d., Vtorm 10/20 mg every other day, Glucotrol 10 mg daily, digoxin 0.125 mg daily, losartan 100 mg daily, Plavix 75 mg daily, Pepcid 20 mg daily, insulin, Lantus 25 units daily, Norvasc 10 mg daily, Lasix 40 mg daily, **potassium** 20 mEq daily.

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 General appearance: The patient is alert and oriented in no acute distress. Blood pressure: 170/70. Pulses: 70. Respiratory Rate: 18. Neck: No noted JVD. Lungs: Clear to auscultation bilaterally. Heart: S1 and S2 with a positive systolic murmur. Abdomen: Soft, nontender, nondistended. Extremities: No lower extremity edema.

assessment:
 1. Hypertension. 2. Coronary artery disease. 3. Aortic stenosis. 4. Dyslipidemia. 5. Diabetes.

plan:
 The patient will be started on clonidine 0.1 mg b.i.d. He will follow up in 1 week for a repeat blood pressure check. Results of the stress test and **echocardiogram** and laboratory data were reviewed with patient at length. Recent **cholesterol** was 100 with an LDL of 60, **HDL** 25, and triglyceride of 77.

history of present illness:

76999 Unlisted ultrasound procedure (eg, diagnostic, interventional)

current medications:

84132 Potassium, serum, plasma or whole blood

plan:

76999 Unlisted ultrasound procedure (eg, diagnostic, interventional)

82465 Cholesterol, serum or whole blood, total

83721 Lipoprotein, direct measurement, LDL cholesterol

CPT-4 Code Database Search

Normal HTML Preview Words: 268 Characters: 2873


Sign Save Assist Re-Code Share Cancel

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Figure 4. RxNORM

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MediSapien
Model. Knowledge. Managed. Solutions.

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www.zydoc.com
www.medisapien.com

RXNORM Coding Type: *ON*

Job ID: *129096* Date of Service: *8/25/2010*

Patient Last: *Cardiology*

Patient First: *Test*

Patient MI: *A*

Patient DOB:

[SNOMED](#)

[ICD-9](#)

[CPT-4](#)

[LOINC](#)

August 25, 2010.

objective:

.

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The patient presents today for follow-up. He was recently discharged from _____ Hospital. He had presented with shortness of breath and generalized fatigue. A stress test was negative. Echocardiogram revealed mild AS with preserved LV function. The patient was found to be significantly hypertensive and medications were adjusted. Unfortunately **Coreg** was unable to be **increased** given his low heart rate. He went down to the 30s at times at night. The patient has been seen by visiting nurse, who states his blood pressures run from 160-180s at home.

current medications:

Coreg 3.125 mg b.i.d., **Wytorin** 10/20 mg every other day, **Glucotrol** 10 mg daily, **digoxin** 0.125 mg daily, **losartan** 100 mg daily, **Plavix** 75 mg daily, **Pepcid** 20 mg daily, insulin, **Lantus** 25 units daily, **Norvasc** 10 mg daily, **Lasix** 40 mg daily, potassium 20 mEq daily.

physical examination:

General appearance: The patient is alert and oriented in no acute distress. Blood pressure: 170/70. Pulse: 70. Respiratory Rate: 18. Neck: No noted JVD. Lungs: Clear to auscultation bilaterally. Heart: S1 and S2 with a positive systolic murmur. Abdomen: Soft, nontender, nondistended. Extremities: No lower extremity edema.

assessment:

1. Hypertension. 2. Coronary artery disease. 3. Aortic stenosis. 4. Dyslipidemia. 5. Diabetes.

plan:

The patient will be **started on clonidine** 0.1 mg b.i.d. He will follow up in 1 week for a repeat blood pressure check. Results of the stress test and echocardiogram and laboratory data were reviewed with patient at length. Recent cholesterol was 100 with an LDL of 60, HDL 75, and triglyceride of 77.

history of present illness:

Coreg

- change: **increase**

current medications:

Coreg

- dose: **3.125 mg**
- frequency: **bid**

Wytorin

- date: **06001020**

Glucotrol

- dose: **10 mg**
- frequency: **daily**

Digoxin

- dose: **0.125 mg**
- frequency: **daily**

Losartan

- dose: **100 mg**
- frequency: **daily**

Plavix

- dose: **75 mg**
- frequency: **daily**

Pepcid

- dose: **20 mg**
- frequency: **daily**

Lantus

- dose: **25 unit**
- frequency: **daily**

Norvasc

- dose: **10 mg**

RXNORM Code Database Search

Normal HTML Preview
Words:268 Characters:2873

Sign
Save
Assist
Re-Code
Share
Cancel

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Figure 5. LOINC®

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ZyDoc medical transcription
MediSapient
Medical Knowledge. Affordable Solutions.

MediSapient™ is a web-based platform developed by ZyDoc that utilizes NLP technology to convert unstructured text into structured, coded data for EMRs and data repositories.

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LOINC Coding Type: ON Patient Last: *Cardiology* [SNOMED](#)
Patient First: *Test* [ICD-9](#)
Patient MI: *A* [CPT-4](#)
Patient DOB: [RXNORM](#)

Job ID: *129096* Date of Service: *8/25/2010*

August 25, 2010.

objective:
.

history of present illness:
The patient presents today for follow-up. He was recently discharged from _____ Hospital. He had presented with shortness of breath and generalized fatigue. A **stress test** was negative. **Echocardiogram** revealed **mild AS** with preserved LV function. The patient was found to be significantly hypertensive and medications were adjusted. Unfortunately Coreg was unable to be increased given his low heart rate. He went down to the 30s at times at night. The patient has been seen by visiting nurse, who states his blood pressures run from 160-180s at home.

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assessment:
1. Hypertension 2. Coronary artery disease 3. Aortic stenosis 4. Dyslipidemia 5. Diabetes.

plan:
The patient will be started on clonidine 0.1 mg b.i.d. He will follow up in 1 week for a repeat blood pressure check. Results of the **stress test** and **echocardiogram** and **laboratory data** were reviewed with patient at length. Recent cholesterol was 100 with an LDL of 60, HDL 25, and triglyceride of 77.

history of present illness:
 Exercise stress test
 Cardiac echo
• **degree: low degree**

physical examination:
 Auscultation
• **region: bilateral**

plan:
 Exercise stress test
 Cardiac echo
 Laboratory studies

LOINC Code Database Search

Normal HTML Preview Words:268 Characters:2873

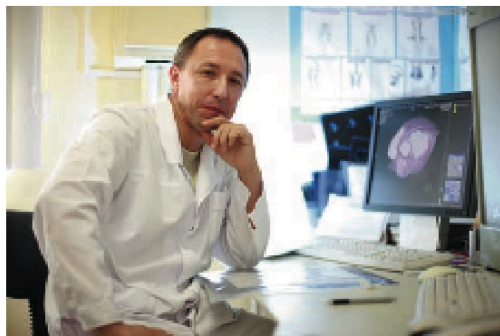
Sign Save Assist Re-Code Share Cancel

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ZYDOC MediSapien

EHR/RIS/PACS STRUCTURED REPORTING MODULE

*Facilitates Meaningful Use Objectives
for Structured Reporting & Interoperability*

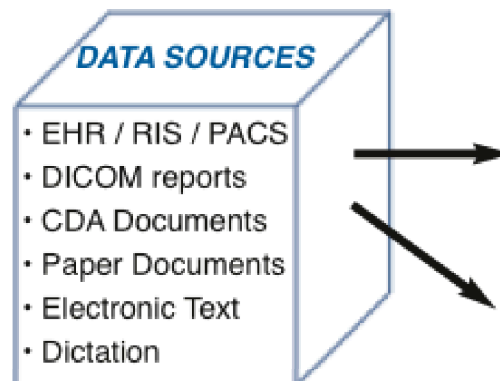


PROBLEM

Physicians want to work efficiently with dictation and generate rich clinical notes that are readable and not waste time with cumbersome structured data entry methods that are difficult to read and contain less information than text. The health care community lacks the ability to fully use, analyze, and exchange health information in a meaningful way. Unstructured data not conforming to established standards is a barrier to patient treatment, safety, and outcomes.

SOLUTION

MediSapien™ allows doctors to dictate reports efficiently and automatically extracts structured terminology. Through the use of NLP and other technologies, MediSapien converts unstructured text (such as reports) from new patient encounters or previously stored legacy documentation to ICD-9 / ICD-10, SNOMED CT, LOINC, RxNorm and other required medical terminologies.



STRUCTURED DATA USAGE FOR:

- Insertion into an EHR, RIS, or PACS
- Transmission through an HIE
- Online access via MediSapien web interface for coding, billing and/or review purposes
- Delivery to a data repository housed by the client, the client's technology provider, or MediSapien

MEDICAL TERMINOLOGIES:

- SNOMED CT® • ICD-9 / ICD-10 • LOINC® • RxNorm • others

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“ In order to address the current and future needs of the U.S. health care system, we must be able to fully use, analyze, and exchange health information in a meaningful manner, with the appropriate use of computerized data — structured data that conforms to well-defined standards. **MediSapien** enables the next generation of health care informatics to realize acceptable patient treatment, safety, and outcomes. ”

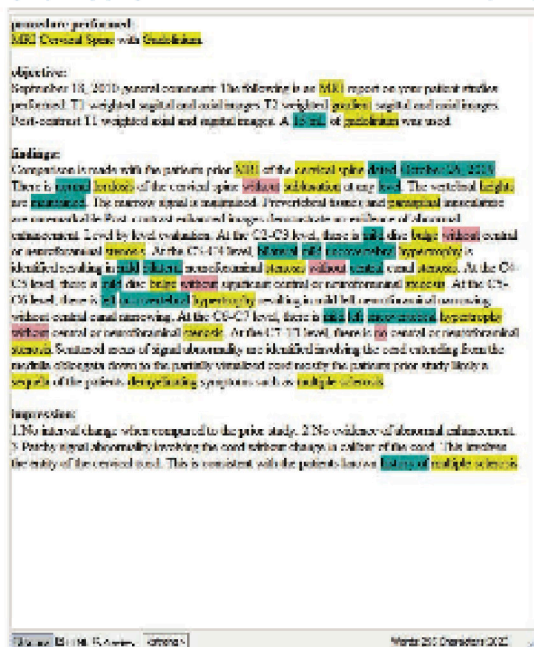
– Glenn S Fields, ZyDoc Radiology & Cardiology Solutions Specialist

EHR/RIS/PACS STRUCTURED REPORTING MODULE

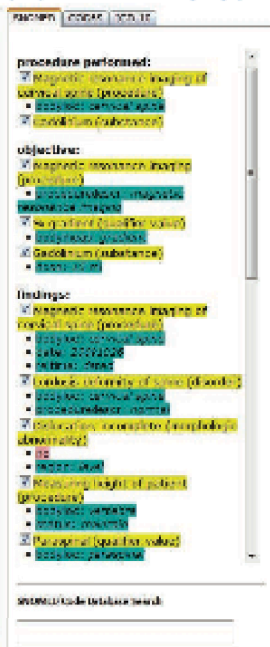
Addressing the Needs of Health Care Providers and Technology Partners:

- Medical transcription providers
- EHR companies and resellers
- RIS / PACS companies
- HIEs
- Billing companies
- Health analytics companies
- Technology integrators
- Medical data exchanges
- Scanning companies

UNSTRUCTURED TEXT



STRUCTURED TERMINOLOGIES



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Established in 1993, ZyDoc is an award-winning leader in the medical informatics industry with core competencies in medical knowledge management solutions including data conversion, document management, medical transcription, speech recognition technology, and medical practice management. To learn more about MediSapien Structured Reporting and other MediSapien service modules, please contact a ZyDoc representative at 800-546-5633 or sales@zydoc.com.