

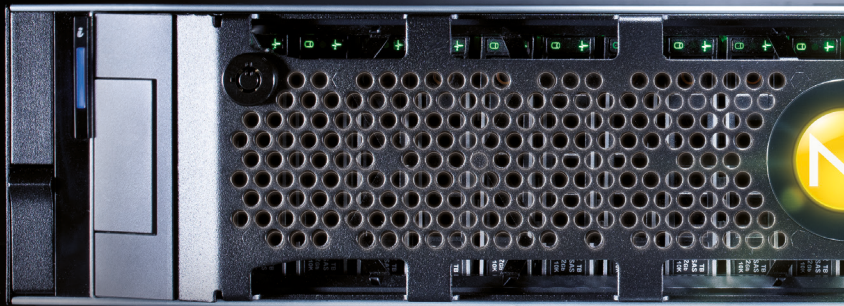
Mindbreeze InSpire in the Healthcare Sector

THE MEDICAL COCKPIT

.....
Illuminating Information
health.mindbreeze.com

Mindbreeze InSpire and the flood of data in the healthcare sector

In health care facilities, a huge amount of digital information is generated for each patient. This data is stored in different formats and distributed across multiple sources. Important information comes from the hospital information system (physician's letters, laboratory findings, etc.), drug databases, specialist catalogues (ICD-10), as well as external sources such as the Cochrane Library.



Knowledge management in healthcare

Intelligent use of existing knowledge is critical to the success of any healthcare facility. Patients rely on the fact that their doctor has access to the right data at all times, including data from previous examinations. However, the exchange of information across different systems, programs, departments, or even hospitals is often challenging.

Efficient knowledge management should network the various types of information while at the same time classifying and understanding the content, for example from text documents or dictations. In addition to structured information, unstructured information from documents also needs to be efficiently analyzed and integrated.

Mindbreeze InSpire locates the relevant information in all data sources rapidly and provides targeted support to specialist departments to meet their information needs. You receive all the information pertaining to a patient, case, or particular medication quickly and intuitively.

„Mindbreeze sifts through millions of different unstructured documents and prepares them as structured information for use in medicine and patient care. This simplifies day-to-day hospital work significantly, and the compilation of this knowledge creates completely new conditions for the care and support of patients while also increasing the quality of treatment.“

Michael Wiltschnigg, Managing Director of Care Solutions



Semantic analysis and research

Mindbreeze InSpire provides semantic analysis and search in both clinical and research environments. The application collects every kind of information, whether it be physician's letters, patient information, laboratory findings, medical records, notes, or e-mails, and continuously updates new or amended information.

This allows you to access the pertinent and up-to-date information you are looking for quickly and easily.

Specialists and doctors immediately receive a complete overview of the course of the illness, medication prescriptions, and a host of other valuable information relating to a specific case. Naturally, the data being searched is only available to those users who are authorized to do so in the context of the authorizations of the source systems.

With Mindbreeze InSpire, information can be linked, making medical correlations transparent. This allows cases that are similar to each other to be found quickly; conspicuous combinations of diagnoses, risk factors, and therapies can serve as the basis for quality management or medical controlling projects.

The Medical Cockpit

An interactive patient summary was created using a special Mindbreeze InSpire application. The Medical Cockpit “reads” documents, understands their content, and clearly summarizes the essential information.

Integration of external systems

In addition to in-house data, Mindbreeze offers simple integration of third-party systems (archive solutions, eHealth applications, ELGA). The marked external documents appear in the patient overview alongside the in-house documents.

Some information may not be relevant to the particular clinical problem. The results can be further limited using filters to glean the essential facts (diagnoses, therapies, symptoms, drugs). A semantic search, which also understands synonyms and jargon terminology, also accommodates targeted searches in all available clinical documents.

The screenshot displays the AMADEUS SPITAL Medical Cockpit interface for a patient named John Doe (Male, 56). The interface is divided into several sections:

- Header:** AMADEUS SPITAL logo, Settings, Help, Info, and Patient Summary button.
- Patient Information:** Birthday (01/10/1963), Address (123 Main St, Anytown, USA, +1-541-754-3010), Allergies (Penicilline), and a search field.
- Document Type Filter:** A list of document types with counts: All (7), Doctor's letter (7), Imaging (2), Laboratory Findings (2), and Findings (1).
- Document Date Filter:** A dropdown menu for filtering documents by date.
- Diagnosis Filter:** A dropdown menu for filtering documents by diagnosis, currently set to "Diagnosis (negative)".
- History:** A calendar view showing document activity from 2013 to 2014. The calendar highlights two periods: "Sept. 6 - Sept. 9" and "Oct. 11 - Oct. 12".
- Document List:** A table of documents for 2014 and 2013.

2014			
Date	Document Type	Facility	Subject Area
08/01/2014	Doctor's letter	General Hospital	Cardiology
07/15/2014	Findings	General Hospital	Cardiology
07/01/2014	Imaging	General Hospital	Cardiology
06/12/2014	Doctor's letter	General Hospital	Cardiology
04/18/2014	Laboratory Findings	General Hospital	Cardiology
03/22/2014	Findings	General Hospital	Cardiology

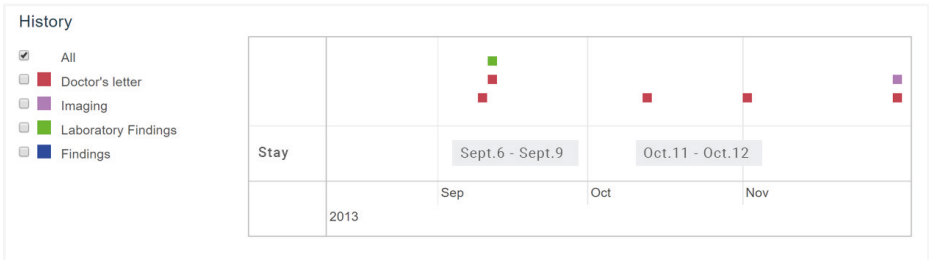
2013			
Date	Document Type	Facility	Subject Area
12/01/2013	Doctor's letter	General Hospital	Cardiology

Medical Cockpit

„With Mindbreeze, we now have a company on board that brings IT competence, medical expertise, and the necessary spirit. I recently visited Linz: It was a joy to see the enthusiasm and energy that the team there puts into their work.“

Stephan Holzinger, Managing Director of Rhön-Klinikum AG

With a timeline that visualizes all inpatient and outpatient visits and provides direct access to the pertinent documents, the entire patient history can be viewed at a glance.



Overview with the timeline

Using a semantic search option, relevant documents can be filtered rapidly and limited to the current problem.

AMADEUS SPITAL

Settings Help Info

John Doe (Male, 56) Patient Summary

10/06/2009, Doctor's Letter Schließen

Abteilung für Chirurgie

Aufnahmegrund:
Bekannter **Diabetes mellitus**
Niereninsuffizienz

Diagnosen bei Entlassung:
E11.4 **Diabetes mellitus, Typ 2 mit Niereninsuffizienz**
I15.9 **arterielle Hypertonie**

Durchgeführte Maßnahmen:
EZ020 Anlage eines arteriovenösen **Dialysehunts** ohne Kunststoff am linken Unterarm

Empfohlene Medikamente:
Insulin „Novo Nordisk“ Ultratard HM 100 I.E./ml laut Plan
Adalat ret. 20mg 1-0-0
Ospen 1500mg 1-1-1 bis 12.6.2009

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Search with highlighted hits

Knowledge management in hospitals

The various user groups require an efficient search tool to address their specific information needs.

Medical controlling

Medical controlling staff constantly face major challenges: Not all medical services are adequately and consistently documented and coded. This necessitates a great deal of effort in searching and checking unstructured text documents (surgery reports, discharge letters, etc.).

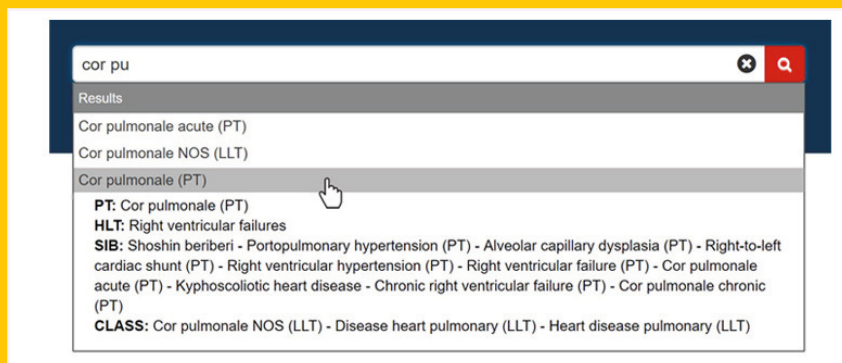
However, hospital revenues are directly linked to the accurate documentation and coding of the services provided.

Mindbreeze InSpire offers a tailor-made solution:

- ✓ Rapid retrieval of diagnoses and procedures
- ✓ Analysis of relevant documents (OR reports, discharge letters, physician's letters, etc.)
- ✓ Comparison with service, procedure, and performance catalogs (MEL, ICPM, OPS-301, OPS-2008 and others)
- ✓ Use of extended diagnosis catalogs (ICD-10, thesauri)
- ✓ Support through in-house catalogs, synonym lists, jargon terms
- ✓ Export to external systems (coding tools, BI systems)

Example question: “Are all the surgeries that appear in the OR reports coded accordingly?”

Solution: Mindbreeze filters all terms from the surgery reports that correspond to a service and compares them with the coded services of the patient. This allows “outliers” to be located and supplemented promptly and efficiently.



Auto suggest

Quality management and research

The data generated in everyday medical practice lays the foundation for successful quality management and targeted research. Mindbreeze InSpire provides a cross-patient view of the relevant information from the entire hospital organization.

This is made possible through:

- ✓ Cohort search throughout the entire unstructured documentation
- ✓ Limiting patient groups using a wide range of filters
- ✓ Extracting numerical values from texts (e.g. scores – ASA, Braden)
- ✓ Export function for further processing in statistics programs or BI systems

Example question: “Is there a correlation between falls, age, and patient medication (sleeping pills)?”

Solution: By networking the information from the various data sources, Mindbreeze is able to recognize any correlations.

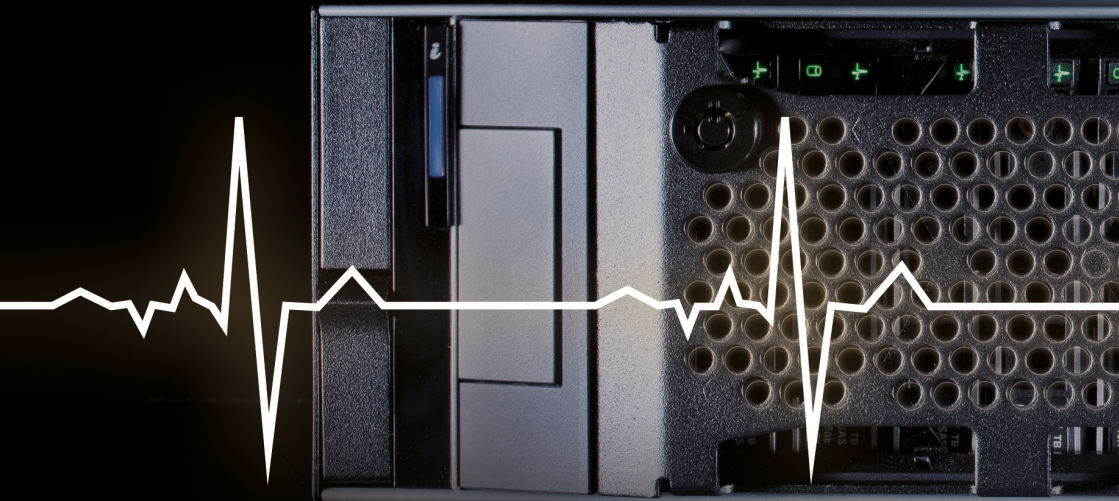
The screenshot shows the Mindbreeze InSpire interface with a search bar containing 'TEP ASA Typ:PAP'. Below the search bar, there are navigation tabs for 'ALL', 'ELGA', 'Drug Database', 'Amadeus Hospital', and 'ICD-10'. The main content area displays '6 Results' for the search query. Each result includes patient information (e.g., 'PAP Last_Name_163808, First_Name_163808 January 2nd, 2019') and a detailed medical record snippet mentioning 'ASA-Classification: I Known'. On the right side, there are options to 'Export', 'Save your Searches', and 'Sort by' (with a dropdown menu set to 'Relevance'). Below the search results, there is a section for 'Patients (6) Cases (6)' with filters for 'Date' and 'Age'.

Export results Close

Export CSV

Case Number	First Name	Last Name	Gender	Age	Content
0109000341	First_Name_163808	Last_Name_163808	F	60	Planned. OP: H- TEP II. Planned. Anesthesia: general anesthesia ... mi...
0109000332	First_Name_163644	Last_Name_163644	F	68	1993 Planned. OP: H- TEP re. Planned. Anesthesia: Sedo ... min.:Blo...
0108034929	First_Name_164525	Last_Name_164525	M	60	Planned. OP: H TEP Planned. Anesthesia: Epidural catheter Spinal an...
0108034937	First_Name_164314	Last_Name_164314	M	56	St. p. K- TEP II. Planned. OP: Mob. in ... min.:blood pressure (mmHg): ...
0109000386	First_Name_164708	Last_Name_164708	F	66	1998 Planned. OP: K- TEP re. Planned. Anesthesia: general anestesi...
0109000371	First_Name_164429	Last_Name_164429	M	74	Planned. OP: K- TEP II. Planned. Anesthesia: Femoral Sciatica Sciatic ...

Cohort search and export of results



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