University of Dundee
School of Medicine
hic health informatics centre

Patients and the Web

Better NHS services with linked data

Frank Sullivan
NHSTayside Prof. of R&D in Primary Care
Health Informatics Centre Dundee

NHS Tayside

WWW2006 Edinburgh Scotland
15th International World Wide Web Conference

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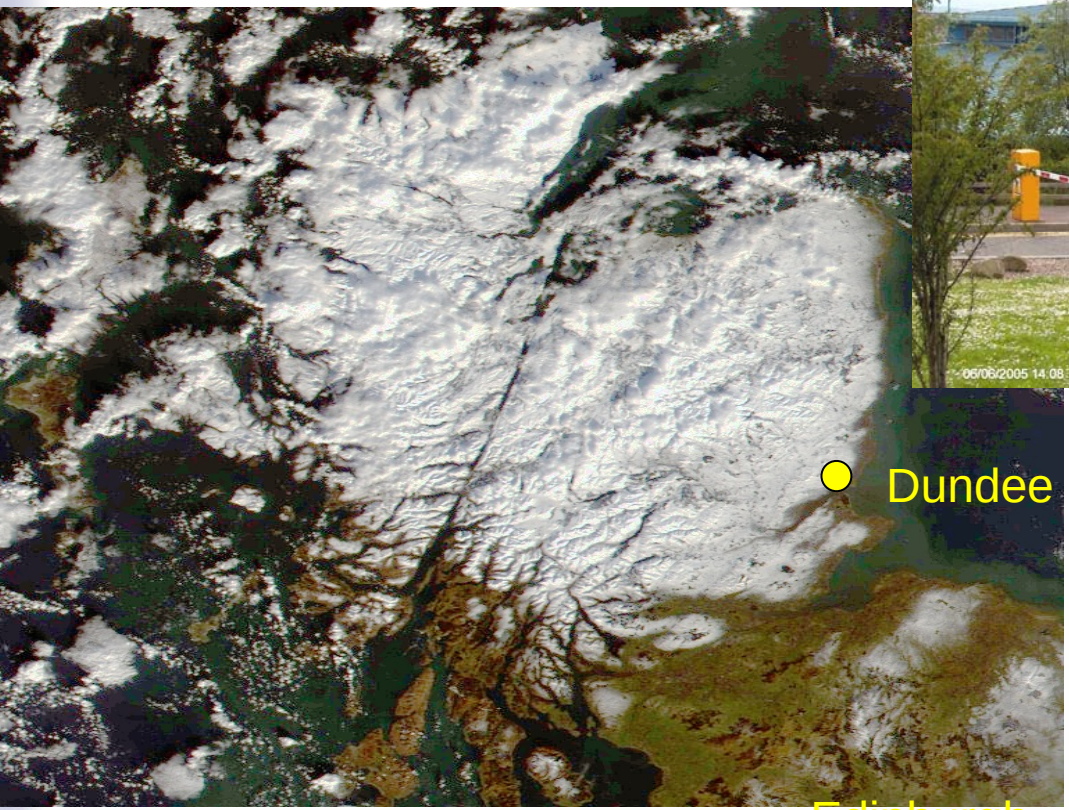

- Dundee

Edinburgh

WWW2006 Edinburgh Scotland
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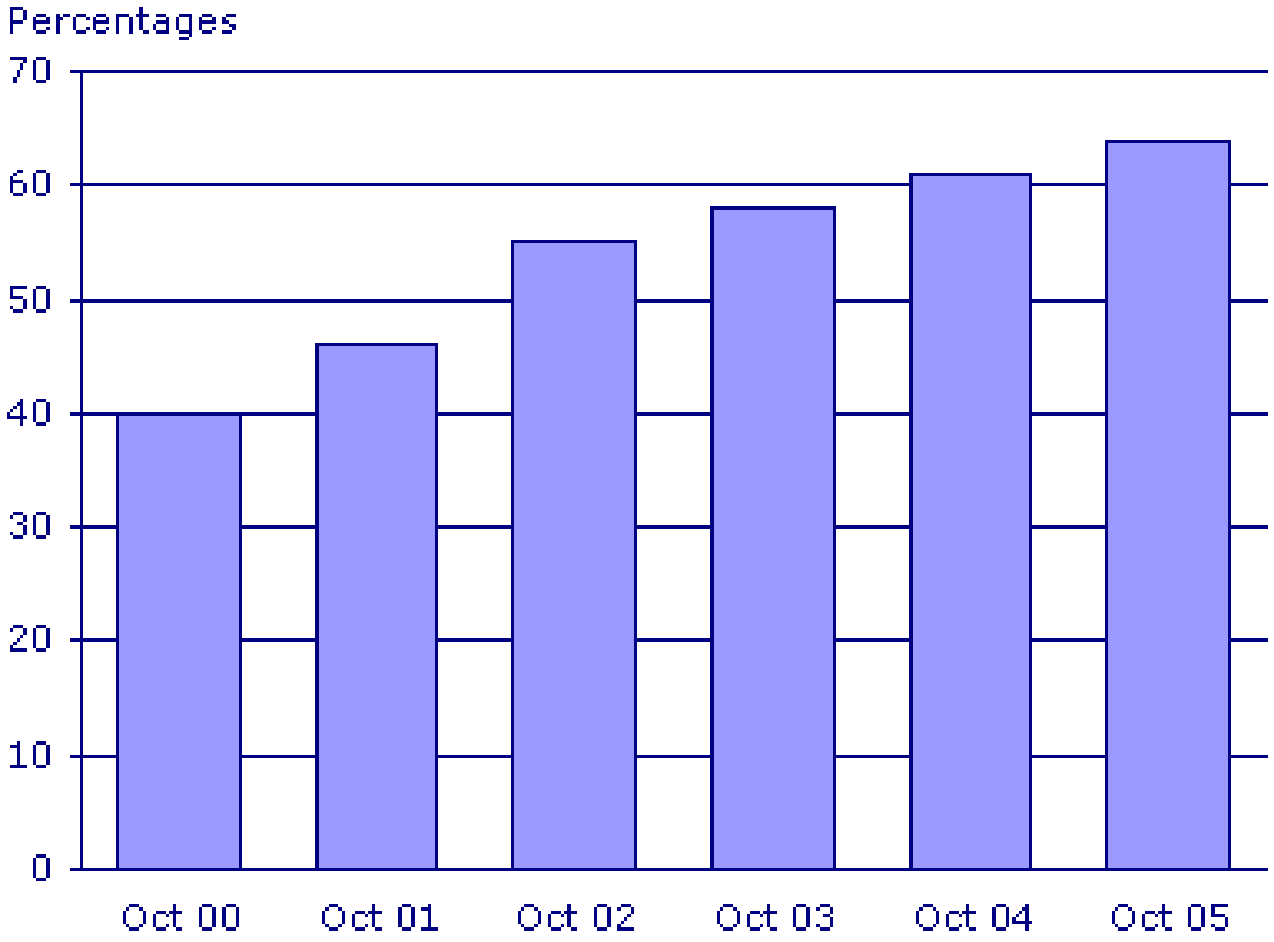
Outline of talk

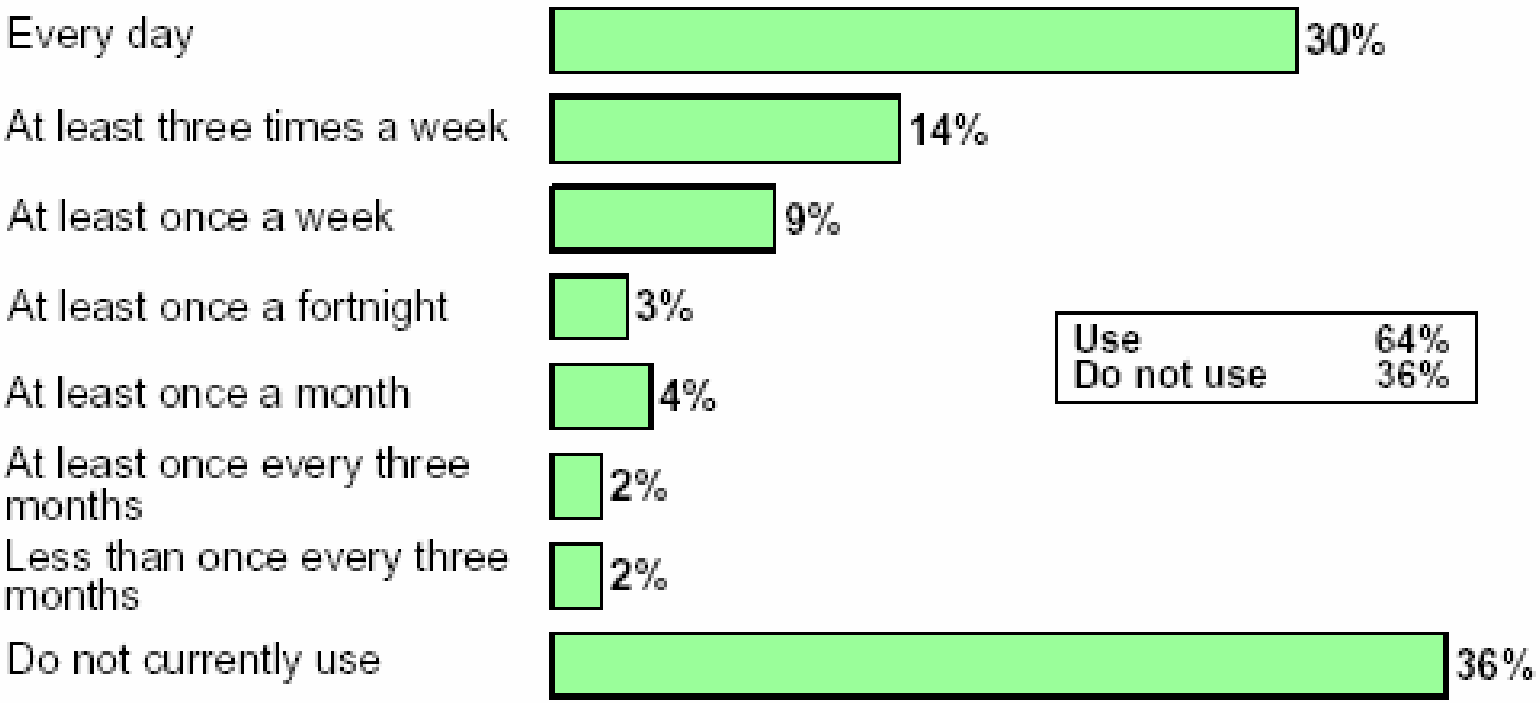
- How are health data linked in Scotland?
- What services does that enable?
- Do patients benefit
- Making access easier
- Multi-agent systems

64% of adults access the Internet



Adults who have used the Internet in the 3 months prior to interview in October 2005 (GB)National Statistics Omnibus Survey 2005

How often, if at all, do you personally use the internet?



Base: All respondents (2,004)

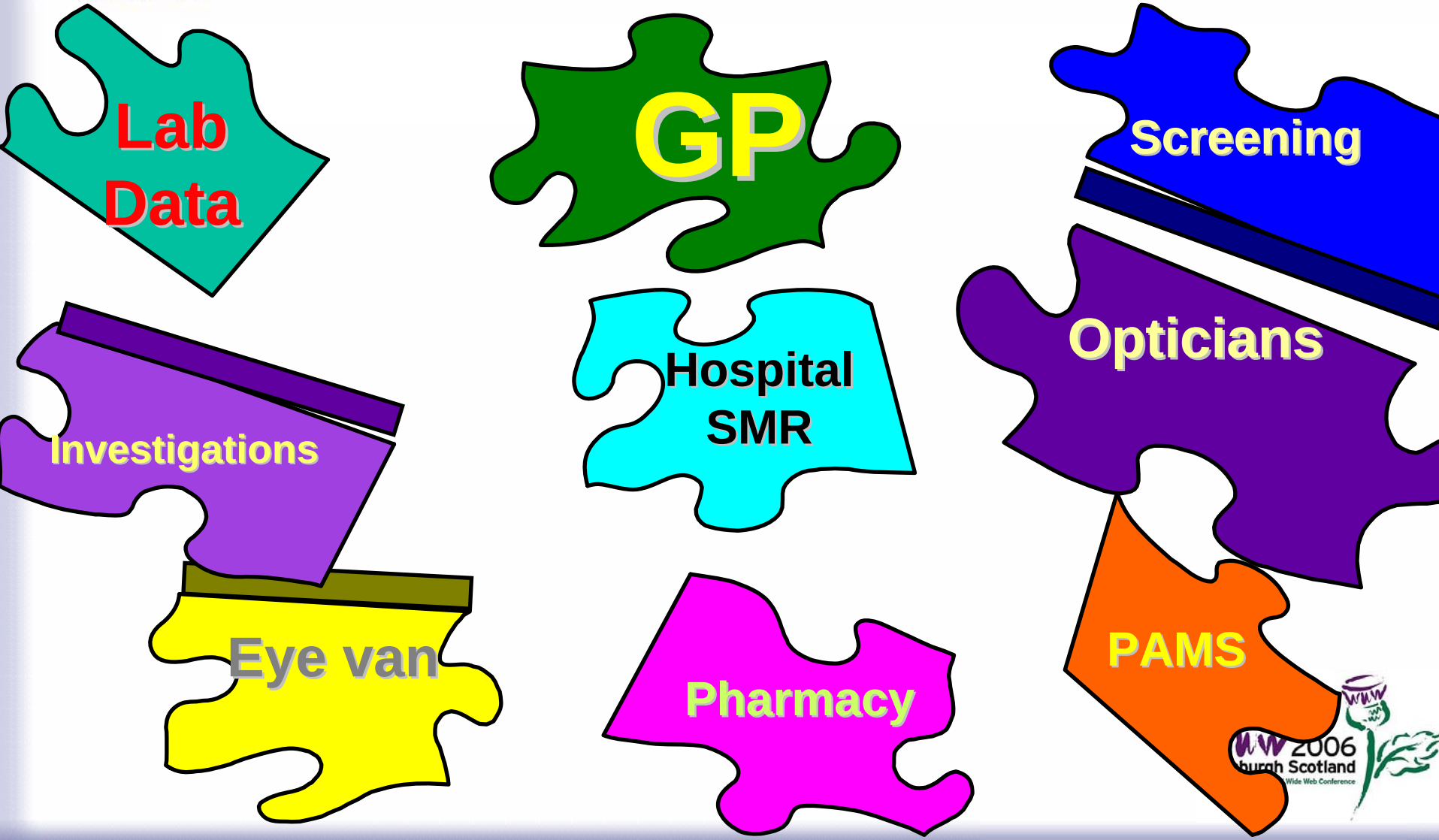
Source: MORI

Health Use Internet

- Have used for this purpose
  - Health-related information 34%
- Is there anything which you have personally never used the internet to do but which you would like to?
  - Get medical information/advice 7%

MORI 2005

Data, Data everywhere



Community Health Number

07 10 64 02 5 0

DOB Serial No **Sex Check**

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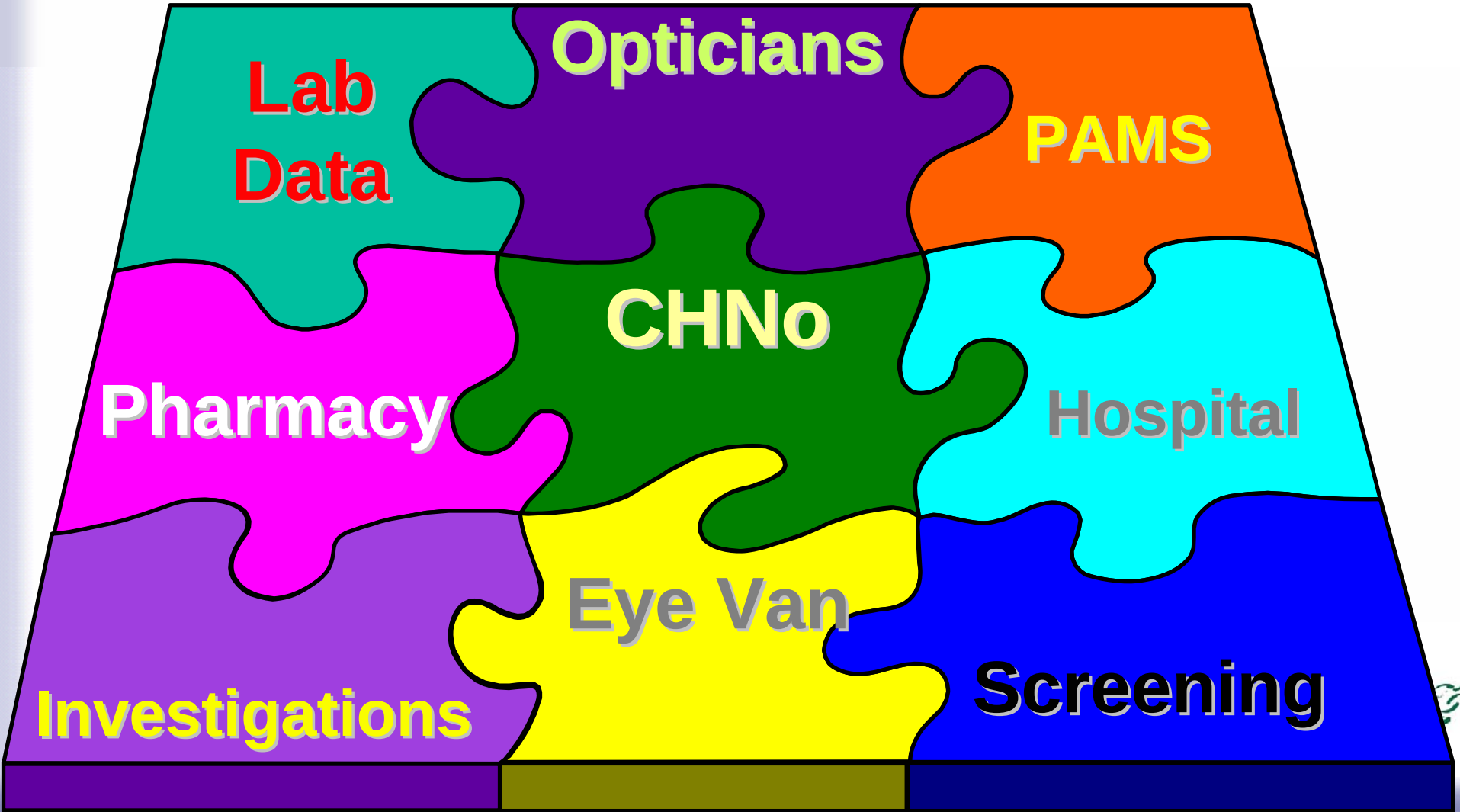
Linking Data for Seamless Care

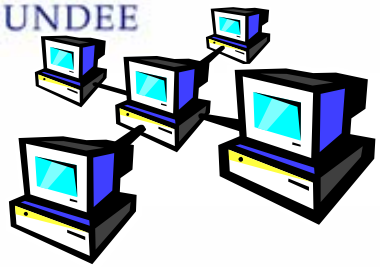


Remote Interrogation GENIE

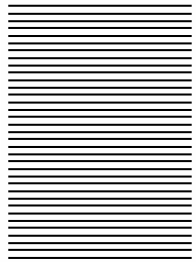
Generic Import and Export

School of Medicine

DUNDEE

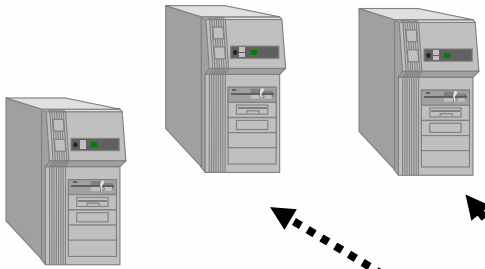


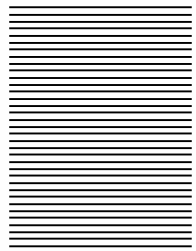
GP Clinical Systems



Data In Standard Format

Erroneous Data





'Clean' Data

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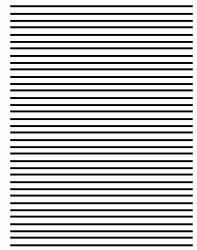
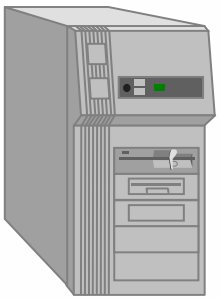
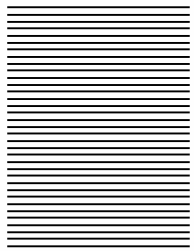


Previous Export



Regional repository



Data For Export

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Currently operational in Tayside, Glasgow and Lothian

NHSTayside ICT Department Communications Infrastructure

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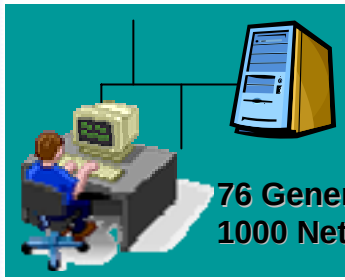
Acute Trust Sites
3 Hospitals
3000 Clients

Health Board Sites
5 Sites
300 Clients

Primary Care Trust Sites
20 Hospitals
700 Clients


76 General Practices
1000 Networked PCs

NHS Tayside
I & CT Department

Firewall

Local Authority
Perth & Kinross
Angus
Dundee
North-East Fife

Other Trusts & Boards

Firewall

SchlumbergerSema Mainframe Services

NHSNet

The Internet

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Web Services

- a standard means of interoperating between different software applications, running on a variety of platforms and/or frameworks.

Patient Summary for clinicians

School of Medicine

LONG TERM CONDITIONS MANAGEMENT
Clinic: DSN Clinic Dundee

NHS Tayside

Home | Search | User Account | Audit | Links | Help

Patient

Patient Identifier : 131032LVNL **Hospital Identifier :** CHI
Name : GOWANS, SARAH **Date of Birth :** 13 Oct 1932 **Sex :** Female
Address : A RESIDENCE SOMEWHERE IN TAYSIDE DUNDEE

Clinical Concerns | Contract Summary | Clinical Summary | Hearts Summary | Diabetes Summary | COPD Summary

Lifestyle/Risk Factors

Smoking Status: Ex - 14 Dec 2004
Blood Pressure: 145/77 mmHg - 14 Jan 2005
BMI: 31.35kg/m² - 14 Jan 2005
Smoking Advice: Advice Given - 25 Nov 2004
Influenza Vacc: Given / Prescribed - 25 Nov 2004

Biochemistry

Total Cholesterol: 5.48 mmol/L - 14 Dec 2004
Microalbuminurea: -
Proteinuria: -
HbA1c: -
Creatinine: 96 µmol/L - 14 Dec 2004

Tests

ETT Test: 01 Aug 2000
Retinal Screening: 30 Jun 2004
Spirometry:
Peripheral Pulses: **Right:** Absent 14 Jan 2005 **Left:** Absent 14 Jan 2005
FEV1: **Base:** 79 **Post:** 87 -21 Jan 2004
Neuropathy Test: **Right:** Normal 14 Jan 2005 **Left:** Normal 14 Jan 2005 (Foot Sensation)
LVD Confirmed by Echo: 20 Jan 2003 - Abnormal septal motion secondary, Abnormal septal motion secondary, to cardiac surgery., Normal diastolic size, Normal systolic function,
Left Vent. Dysfunction: -

Prescriptions :7 repeat prescription(s) and acute presciption(s)(within last 3 months). Acute Drugs

Drug Name	Preparation	Dose	Quantity	Frequency	Last Date	Acute
Pantoprazole	TABS 20MG	1 Tab	56	Daily	26 Jan 2005	False
Aspirin	Dispersible TABS 75MG	1 Tab	56	In the morning	26 Jan 2005	False
Tildiem La	CAPS 200MG	1 Cap	56	In the morning	26 Jan 2005	False
Atenolol	TABS 25MG	1 Tab	56	In the morning	26 Jan 2005	False

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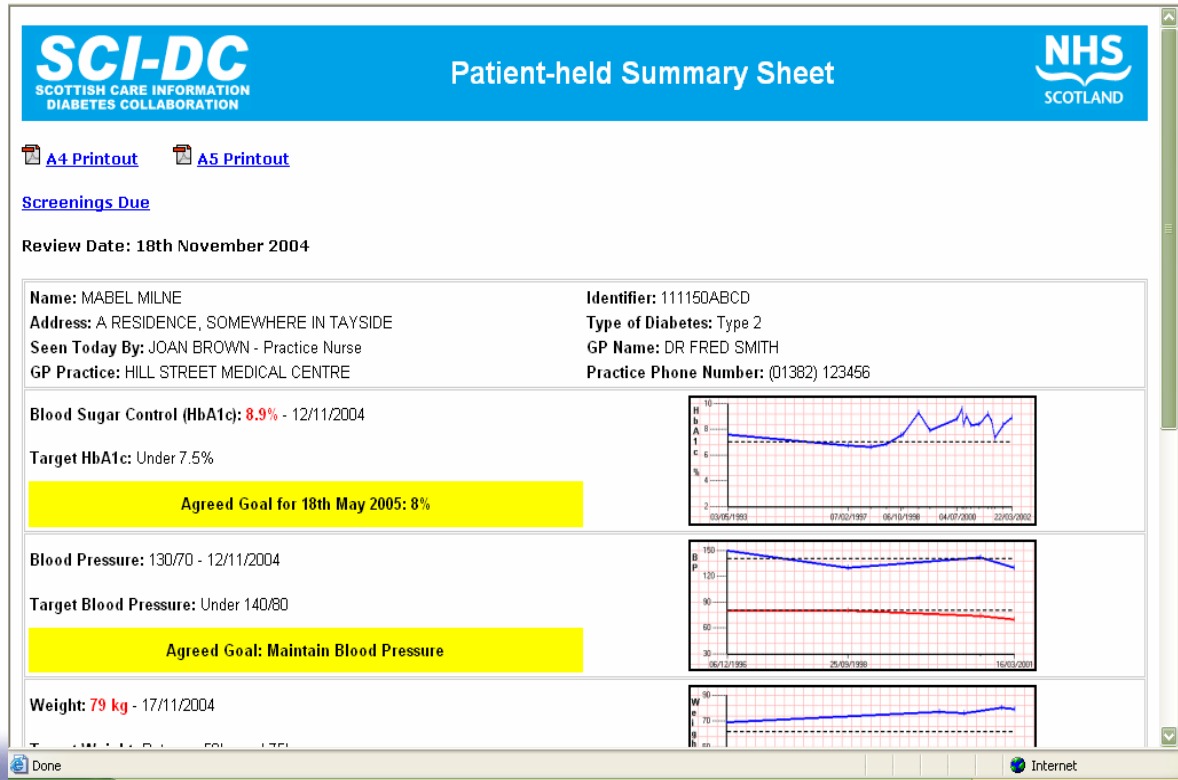
Summary for patients

- NHSTayside IT for managed clinical networks
  - DARTS
  - HEARTS



SCI-DC
SCOTTISH CARE INFORMATION DIABETES COLLABORATION

Patient-held Summary Sheet

NHS SCOTLAND

A4 Printout A5 Printout

Screenings Due

Review Date: 18th November 2004

Name: MABEL MILNE
Address: A RESIDENCE, SOMEWHERE IN TAYSIDE
Seen Today By: JOAN BROWN - Practice Nurse
GP Practice: HILL STREET MEDICAL CENTRE

Identifier: 111150ABCD
Type of Diabetes: Type 2
GP Name: DR FRED SMITH
Practice Phone Number: (01382) 123456

Blood Sugar Control (HbA1c): 8.9% - 12/11/2004

Target HbA1c: Under 7.5%

Agreed Goal for 18th May 2005: 8%

Blood Pressure: 130/70 - 12/11/2004

Target Blood Pressure: Under 140/80

Agreed Goal: Maintain Blood Pressure

Weight: 79 kg - 17/11/2004

Done Internet

Available results reduce visits

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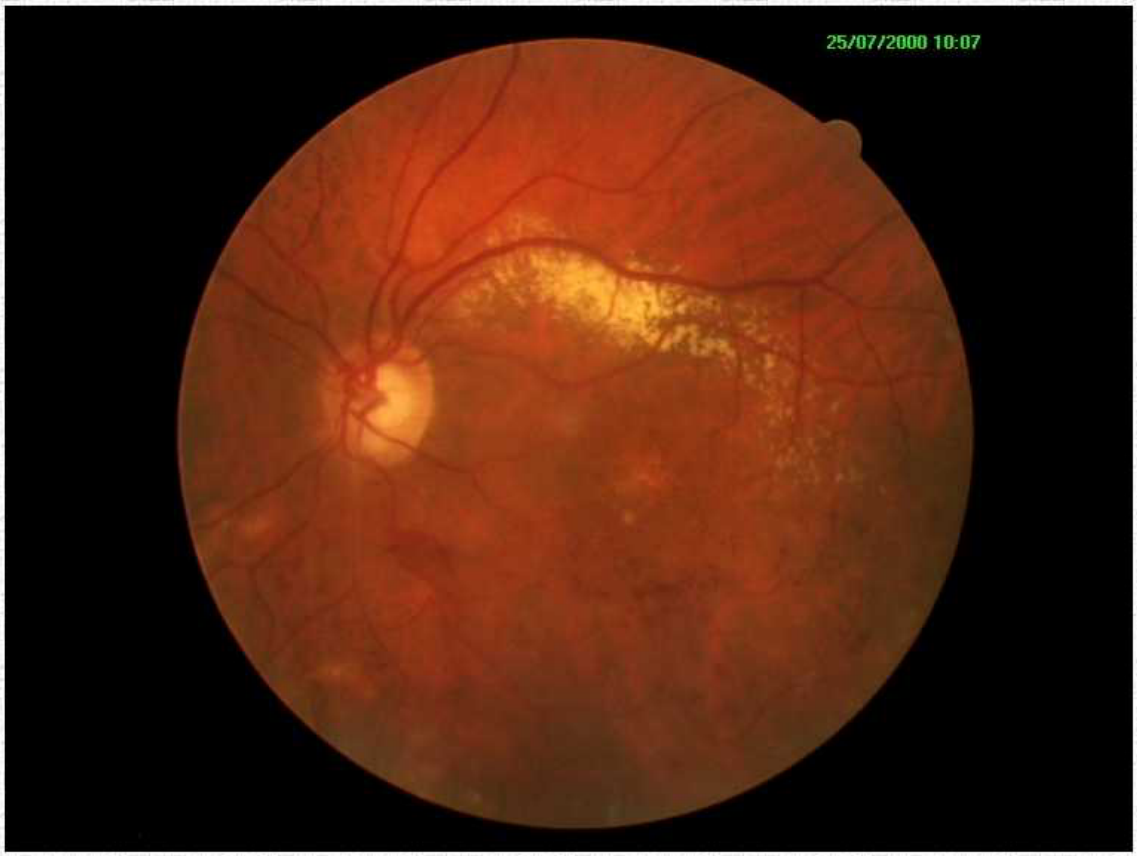
LONG TERM CONDITIONS MANAGEMENT

NHS Tayside



Name : JOHN BELL
Age : 83
Diabetes Type : Type 2
Treatment : None
Diagnosis Date : 17/10/1989

Last Left VA : 6/60 - 25/07/2000
Last Right VA : 6/4 - 25/07/2000

Last Left Retinal Status : Maculopathy - 14/10/1998
Last Right Retinal Status : Maculopathy - 14/10/1998

Last Left Laser : -
Last Right Laser : -

Last HbA1c : 6.6 - 02/03/2001
Last BP : 120 / 70 - 12/08/1999

tricuspid regurgitation. is 36 mmHg which is

On the subcostal views ng over 1 cm. LV

rate to severe TR. ardial effusion as

Back to the Patient Summary Screen | Back to the Image Details Screen

Display Image | Internet

Start | DARTS Cli... | Paint Shop Pro | Microsoft Pow... | Exploring - D:\... | 17:32

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The Tayside Diabetes Network

Main Screen
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Eye Screening
Handbook
Leaflets
Education
Network Org.
Research
News
Links
Search

71986
ccesses Since 26th October 1999

Tayside Regional Diabetes Handbook

Introduction
Diagnosis of Diabetes
Follow-up of Patients with Established Diabetes
Treatment with Oral Hypoglycaemic Agents
Management of Intercurrent Illness
Lifestyle Advice
Screening and Management of Cardiovascular Risk
Diabetes and Driving
Diabetes and Travel
Diabetes and Obesity
Diabetes and Men
Diabetes in Special Circumstances
Current Issue Status
Management of Newly Diagnosed Diabetes
Dietary Advice
Treatment with Insulin
Hypoglycaemia
Screening and Management of Retinopathy
Screening and Management of Kidney Complications
Diabetes and Women
Diabetes and Adolescence
Screening and Management of Foot Complications
Patient Education And Advice
Specialist Care Protocols
Diabetes in Children
SIGN 55 Management of Diabetes

Internet

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SHOW
Back Home Next
Help Comments

Main Screen
Team Members
Regional Clinics
Children's Service
Eye Screening
Handbook
Leaflets
Education
Network Org.
Research
News
Links
Search

71986
Accesses Since 26th October 1999

Initial Dietary Advice

Sample Menu

Encourage patients to have 'starchy' food e.g.bread, potatoes, rice, pasta, cereals or chapattis with each meal. Emphasise the importance of high fibre or wholemeal varieties of these foods.

Breakfast

Porridge or wholegrain breakfast cereal (e.g. Branflakes, Weetabix)
and/or
Wholemeal bread/toast/roll
Fruit – fresh or tinned without sugar.

Mid-Morning

Light Meal

Soup
Bread/toast/roll/baked potato/chapattis
Small portion lean meat, chicken, fish, eggs, cheese or baked beans.
Large portion salad or vegetables.
Fruit as main meal.

Mid-Afternoon

one Internet

The Greater Glasgow Regional Diabetes Network - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://glasgow.diabetes.scot.nhs.uk/ Go

Greater Glasgow SCI-DC

SHOW

Back Home Next

Help Comments

Clinical Info.
Team Members
Regional Clinics
Retinal Screening Unit
Children's Service
Handbook
Leaflets
Research
News
Links
Project Contacts
Main Screen

Accesses Since 20th August 2002

1276

Welcome To The Greater Glasgow Diabetes Network NHS Information Site

Glasgow Clinical Information
Secure DARTS Clinical Information.

Team Members
Team members of the Greater Glasgow Diabetes Network.

Regional Clinics
Diabetes clinics in the Greater Glasgow region.

Children's Services
Services available for children.

Retinal Screening
The Retinal Screening Units in Greater Glasgow.

Project Contacts
Contacts for Diabetes Project in Greater Glasgow.

Greater Glasgow Handbook
Guidelines for Diabetes Care in Greater Glasgow.

Leaflets
Patient information leaflets.

Research
Diabetes research in Greater Glasgow.

Links
Diabetes web links.

News & Events
Latest Greater Glasgow Diabetes news and events.

Site updated Wednesday, 14th May, 2003 by Janet Boyd

Recommend this website to a Colleague and Bookmark this page!

Internet

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27 March 2006

dr foster

search drfoster.co.uk Go

Home | The guides | A-Z of health | Hospital survey | Personal health profile | My Dr Foster | News & publications

Welcome to Dr Foster

This website is all you need for essential information on a range of health services in your area, including details about waiting lists and the doctors that might be treating you.

You won't find this unique service anywhere else. It is brought to you by Dr Foster Limited, the UK's leading independent provider of healthcare information.

I want to find a...

- Hospital
- Consultant
- Birth unit
- Complementary practitioner
- Breast cancer clinic
- Infertility clinic

LATEST NEWS

Dr Foster Intelligence publishes a new report into the cost of emergency admissions

Read more

- More news
- Healthcare professionals

Personal health profile

How likely are you to have to

A-Z of health

All you need to know about

Hospital survey

Let us know what you think

My Dr Foster

Take control of your family's

2006 cotland

HealthSpace

NHS

Home

- Home
- Create a HealthSpace
- Personal details
- Health details
- Library
- Calendar
- Choose & Book
- Login
- Settings
- Sitemap
- Contact us
- Help

Welcome to HealthSpace

HealthSpace is a secure place on the internet where you can store all your personal health information. Please use the links below to find out more.

The Choose and Book service is now available from this website. You do **not need** to open a HealthSpace account to use Choose and Book.

Please login or create a HealthSpace to use all these features.

Choose & Book

- Learn more about Choose and Book.
- Go to Choose and Book now.

Personal details

- Save your personal details.

Health details

- Track your health online.
- Keep a record of all your medications.

atient & Public welcome page — - Microsoft Internet Explorer
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NHS

choose and book

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What is Choose and Book?
How does Choose and Book work?
Patient choice in the NHS
Information to support your choice
Booking your appointment
Frequently asked questions
HS Staff
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ite map

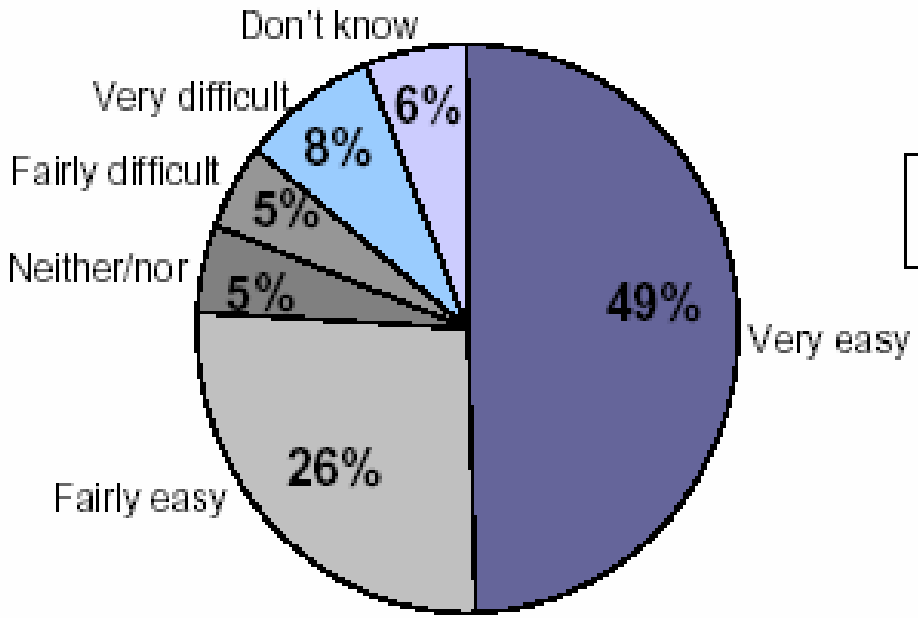
Choose and Book is a new service that allows you to choose your hospital or clinic and book an appointment with a specialist. Since summer 2004, Choose and Book has been introduced across England. It will eventually be available to all patients. From 1 January 2006, when you and your GP agree that you need to see a specialist, you will be able to choose from at least four hospitals or clinics. You will also be able to choose the date and time of your appointment.

"Choose and Book is great because it gives patients like myself the flexibility and choice to choose the hospital, the date and the time where I want to be treated."

Breda Calenti Cambridgeshire
Choose and Book patient

one Internet

How easy or difficult is it for you to get access to the internet?



Easy	75%
Difficult	13%

Base: All (2,004)

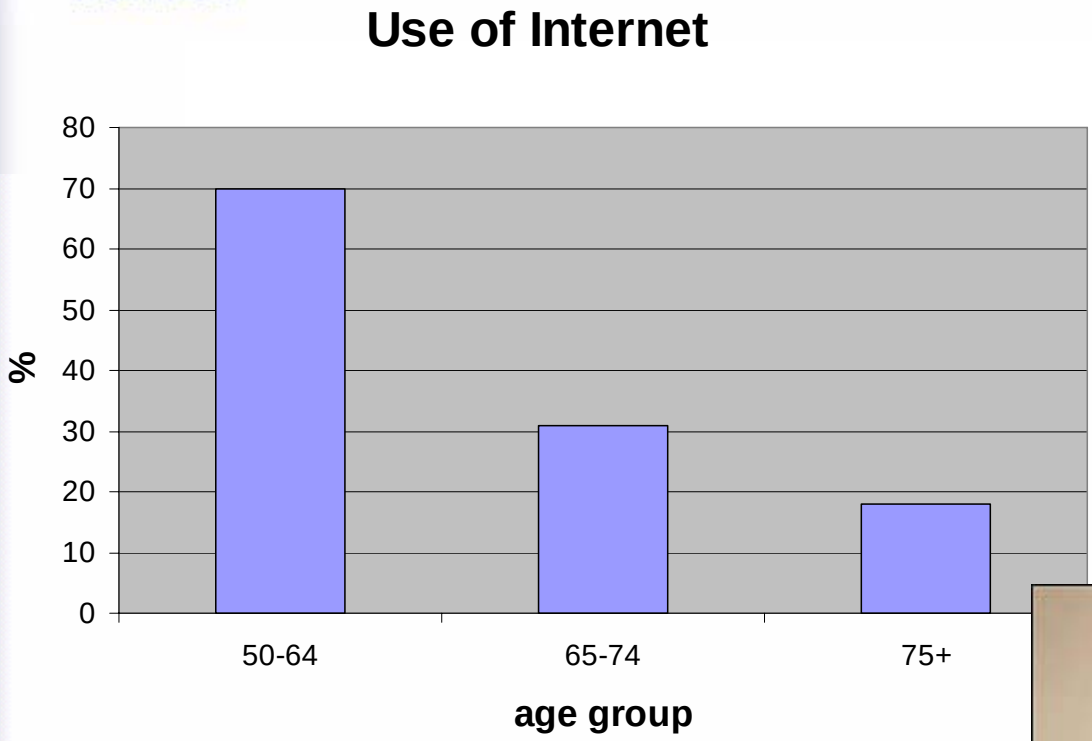
Source: MORI

Health Use Internet

- Have used for this purpose
  - Health-related information 34%
- Is there anything which you have personally never used the internet to do but which you would like to?
  - Get medical information/advice 7%

MORI 2005

Seniors Seeking Health Information Need Help Crossing "Digital Divide"



Voelker R *JAMA.* 2005;293:1310-1312.

Introduction

Having a heart attack is quite common. How each person deals with it and what their recovery is like varies a great deal for many reasons. Many people experience some difficulty concentrating and retaining information in the early stages of having a heart attack, so don't worry if you can't take everything in. This is why it is important to have some written information to remind yourself and your family about what is likely to happen and why. This booklet is designed to give you some guidance about what is happening to you, what to expect and to answer some of the frequently asked questions. It is intended to provide a general background to the experience of heart attack and you should not hesitate to discuss any problems or worries you have with the nurses and doctors who are looking after you.

Understand the facts

Know the truth –there is a lot of wrong information out there based on rumour rather than fact. Remembering and reminding yourself of the right story will help you to feel less anxious and to relax.

Date this page was updated: 23/01/2006

SEARCH: >

How the heart works

Heart Attack: A guide to recovery

What can go wrong with the Heart

Tests for heart disease

Drugs used in heart disease

Risk factors for heart disease

Useful Addresses

Leaflets

Welcome to the heart disease section

This section provides general information for people affected by heart disease. You may be:

- A patient suffering from heart disease
- A carer looking after someone affected by heart disease
- A family member looking for general information about heart disease
- A member of the public looking for information on how to reduce your risk of having heart disease

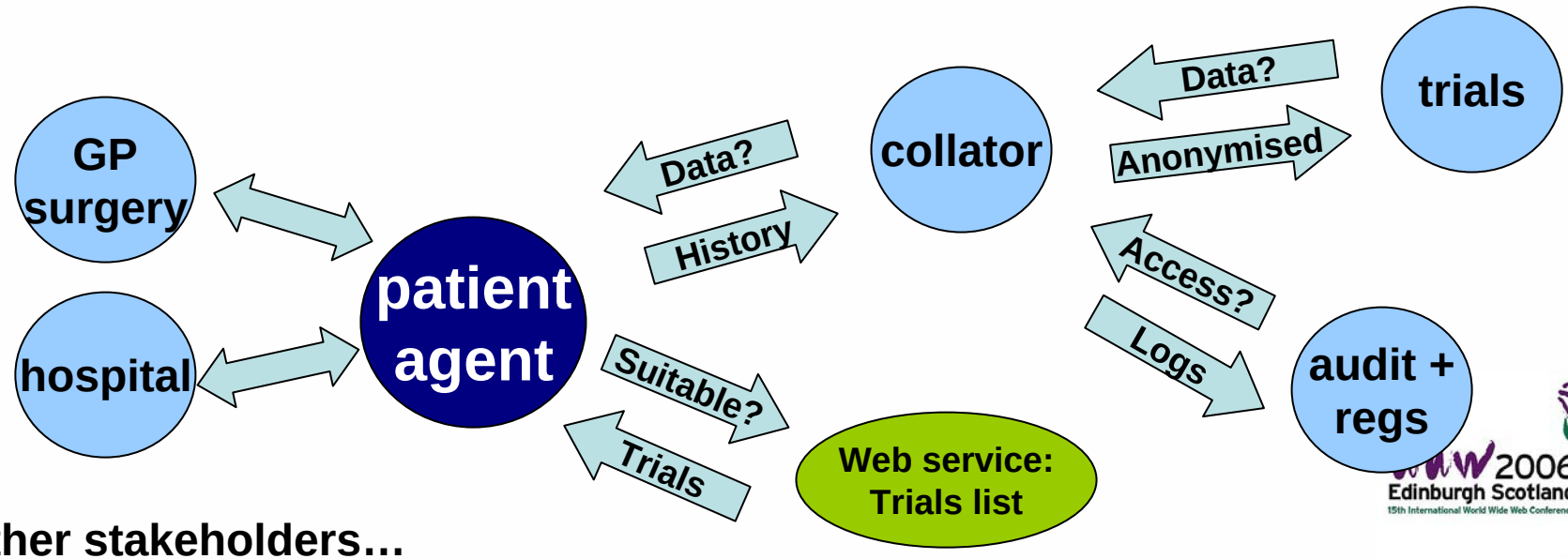
By clicking on the links on the left had side of your screen, you will find information to help with any of these.

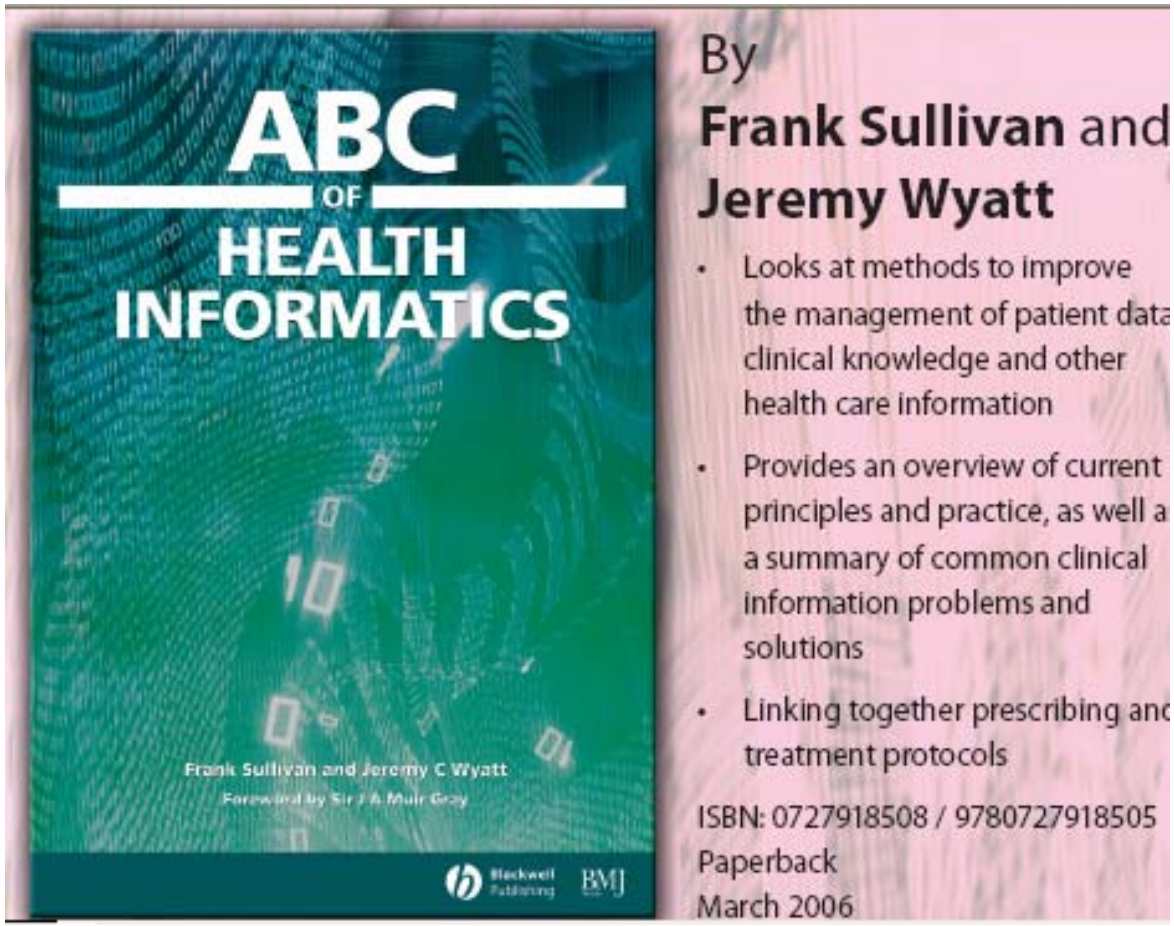
There is also a list of useful addresses if you need further advice or want to find out what support groups there are in you local area and a link to the leaflets section where you can view and print leaflets to keep for future reference.

The information contained in this section has been adapted from Chest, Heart & Stroke Scotland leaflets on heart disease.

Multi-agent Systems in Development

- Patients' electronic rights represented and protected by their agents
- Agents interacting on behalf of patients with electronic systems including web services, databases, and agents representing other individuals, organisations and functions.





By
Frank Sullivan and
Jeremy Wyatt

- Looks at methods to improve the management of patient data clinical knowledge and other health care information
- Provides an overview of current principles and practice, as well a a summary of common clinical information problems and solutions
- Linking together prescribing and treatment protocols

ISBN: 0727918508 / 9780727918505
Paperback
March 2006

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