Computerised Infectious Disease Reporting (CIDR)

HSE – Health Protection Surveillance Centre
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### Advantages of the Computerised Infectious Disease Reporting (CIDR) System

1. **Collection of high quality timely information**
   - Timely information for more responsive public health service at local level
   - Accurate timely information on the burden & incidence of disease for national agencies and Department of Health
   - Evaluate the effectiveness of prevention and control programs locally, regionally & nationally
   - Provide information to plan prevention and control programmes
   - Influence national policies related to infectious & vaccine-preventable diseases

2. **One common system for all surveillance work**
   - Automated secure linkage of lab and clinical information
   - Only 1 surveillance system to maintain replacing numerous local & national databases
   - Most up-to-date information always available in one database to public health professional
   - Variety of patient modes facilitates capture of different patient details for different diseases

3. **Improved Reporting Capability**
   - Standard reports available on-line, and the ability to build ad-hoc reports
   - Generic reports allowing comparison of national and local data
   - Data are available for reporting for all users as soon as they are entered on the system previously there was a delay of up to 10 days in data reaching the HPSC

4. **Improved access to infectious disease information**
   - Public Health professionals have continuous access to the most recent national & local data. National data previously available on a weekly basis only with a lag time of up to 13 days
   - Laboratory professionals can access reports on infectious disease that were not previously available to them
   - Infectious disease can be monitored in real time at local and national level
   - Availability of high quality timely information on infectious disease for public, patients and policy makers

5. **Adaptable & Flexible system**
   - Ability to update master files without reference to developers, including adding new epidemiological questions, new lab tests or results, or even new diseases
   - Master file updates are visible straight away to users
   - New reports can made available to users within minutes of completion

6. **Proven Benefits of CIDR**
   - **Improved data quality:** Case classification provided for 95% cases in areas using CIDR compared with 64% in other areas
   - **Enhanced and easy access to data** for Public Health professionals:
     - Public Health professionals can access data regardless of location rather than being restricted to paper files available at any one location (HSE North Eastern Area)
     - Public Health professionals can remain in local offices but work as part of regional team with access to same data (HSE Midland area)
   - **Rapid generation of reports:** Reports can be generated in seconds compared with several hours or even days previously
### Business Rules: Controlled & Secure Access to CIDR

#### Why are Business Rules needed?
- All partners/participants in CIDR need to agree & adhere to principles of participation, or Business Rules
- Buy-in from users is essential to ensure appropriate access & local acceptance of Business Rules
- Standardise procedures and policies across various organisations (prior to establishment of HSE)
- Controlled and secure access is achieved

#### Local involvement & ownership of Business Rules
- Business Rules Committees (BRC) were formed in each HSE Area
- All professions and stake holders were represented
- A representative from each Local BRC sat on the National Business Rules Committee (NBRC)
- NBRC included representatives from all professions & stake holders as well as the local representatives

#### Built-in Flexibility
- Agreement that CIDR roles could be applied locally as appropriate reflecting different local practises
- Each HSE Area can operate as a single unit or be further sub-divided
- Access and procedure for granting access in exceptional circumstances agreed

#### Information Governance
- CIDR Information Security policy is part of CIDR Business Rules
- CIDR is IS17799 certified
- Reference to professional obligations
- All CIDR partners must be signatories to the Business Rules
- Strict procedure for granting/changing access in CIDR as well as regular reviews of users

#### What are Business Rules?
- The CIDR Business Rules document states that information in CIDR will be:
  - Held securely and confidentially
  - Obtained fairly and efficiently
  - Recorded accurately and reliably
  - Used effectively and ethically
  - Shared appropriately and lawfully
- It lays out policies, procedures and measures that ensure the confidentiality, integrity and availability of data in CIDR are maintained

#### Clearly defined roles & responsibilities
- National Business Rules Committee agreed a detailed matrix to reflect the many roles and levels of data access for CIDR users
- Role of local CIDR Manager defined
- Confidentiality Agreement signed by senior manager, recognising a corporate responsibility to maintain confidentiality of data maintained in CIDR

#### Ownership of Data Agreed
- Ownership of data is clearly defined in the Business Rules document
- Local dissemination of data within an HSE Area encouraged
- HPSC defined as having overall responsibility for national data
- Guidelines for publication agreed for all CIDR users

#### Data Protection
- Consultation with Data Protection Commissioner about CIDR
- Reference to duties under Data Protection legislation included in Business Rules
- Data Protection training is pre-requisite for CIDR training
- Compliance with Data Protection legislation re-assures CIDR partners
Technologies

Technical Architecture
- n-tier Architecture
  - User Services
  - Directory Services
  - Business Façade
  - Business Rules
  - Data Access
  - Data Persistence

Security and Availability
- Three Level User Authentication
  - User name
  - User Personal Identification Number
  - RSA Keyfob Token
- Government VPN
- 128-bit SSL encryption
- Multiple firewalls / intrusion detection
- Business Continuity / Disaster Recovery Site with ‘live’ data

Software Architecture
- Microsoft Solution
  - .NET
  - IIS
  - SQL Server 2000
- Web Services, XML, SOAP, 128 bit SSL
- Service-oriented Architecture

Development and Integration Partner
- Fujitsu Services Ireland
  - Utilising products from
    - Microsoft
    - Business Objects
    - Dell
    - RSA
National Implementation

North East
South
North West
West
MidWest
East
Midland
South East

Salmonella Reference Laboratory
MRSA Reference Laboratory
Health Protection Surveillance Centre
Virus Reference Laboratory
Meningococcal Reference Laboratory

Implemented
Implementation Scheduled Q3 2005
Implementation to be Scheduled
Implementation in Discussion
Pending Public Health Reorganisation
Topology

External and Internal Clients

“Services” gVPN for Disaster Recovery

“Own Agency” gVPN for Replication

HPSC Production Environment

Externally Hosted Disaster Recovery Environment

DNS Server

Switch

Router

Firewall

Web Server

App Server

DB Server

1Mb X21
Reporting Framework

Data Capture and Use

Operational Systems

CIDR Application

Operational View

Operational Database

SQL Server
Relational Database
With Analysis Services

Query, Reporting, and Analysis

Informational Systems

Informational View

Business Objects

Application Business Objects