



Department of Epidemiology & Preventive Medicine (DEPM)
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The Use of Web Data Management Systems for Registries

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The Use of Web Data Management Systems for Registries

- **Role of Data Management System**
- **Factors influencing Data Management Options**
- **Web Infrastructure**
- **Registry Data Management Options**
- **Aims of Data management System**
 - Accessibility
 - Security
 - Easy to use with minimal effort
 - Data Quality and Timeliness
 - Data Tracking, Extraction and Reporting
- **Influences on Web Uptake**
- **Current DEPM Web Projects**

Role of any Data Management System

To get the most accurate data available into an analysable form with as little effort, time & cost as possible without anyone else seeing it.

Factors influencing Data Management Options

- **Existing Data sources**
 - Data available and extractable
 - Use of common standards
 - Quality
 - Integral to functioning of organisation
 - Large Number of data items
 - Large Number of cases
- **Number of sites**
 - As increase, need to look at web
- **Data Collectors**
 - Computer familiarity, computer, internet access

Web Infrastructure

- **Programming Team**
- **Application Tools (Front End eg. ASP.NET 2.0)**
- **Web Server**
- **Database (Back End eg. SQL Server)**



Registry Data Management Options

- **Centralised Desktop system**
 - Data submitted from one or more of existing data sources, paper, teleform, IVRS etc. and entered/loaded centrally by registry staff
- **Distributed Desktop system**
 - Database downloaded to site's desktop and data entered on-site
 - Data transferred to central registry periodically for loading and verification
- **Web-based System**
 - Data entered online



Aims of a Data Management System

- 1. Accessible**
- 2. Secure**
- 3. Easy to use with minimal effort**
- 4. Quality and Timely Data**
- 5. Easy Data Tracking, Extraction and Reporting**



1. Accessibility

Web

- Any PC or laptop with Internet Connection
- Browser eg. Internet Explorer, Mozilla
- Web Address

<https://trauma.med.monash.edu.au/vstorm>

Desktop

- Software must be installed individually on network or PC

2. Security

	Web	Desktop
Authentication	Maximum attempts Timeout after inactivity, Password formats	Dependent on design
Data Protection	Data flow between browser, web server and database server encrypted to 128 bits via Secure Sockets Layer eg. https:\\	For existing data sources and distributed desktop data can be encrypted Eg. FTP
Access Levels	Different for Clinician, Patient, Registry staff, Researchers, Funding Bodies, Public	



3. Ease of Use and Manual Effort

	Web	Desktop
Navigation	Familiar - Home/Search Page / Menu	Dependent on design
Duplication	May Reduce eg. Multiple admissions for same patient May Increase from Data collector perspective if have to enter from paper or re-enter	Prevalent
Manual effort	Depends on Design: <ul style="list-style-type: none">• Number of data items minimised• Use of Drop Down Lists• Minimise Free Text• All scores calculated	Dependent on design

4. Data Quality and Timeliness

	Web	Desktop
Data Quality	Validation on Entry <ul style="list-style-type: none">• Required Fields• Value Ranges• Date Ranges• Consistency Checks Enter as complete dataset	Dependent on design
Timeliness	Entered directly into database for immediate extraction and analysis	Either paper sent and entered centrally or data transferred periodically

5. Data Tracking, Extraction and Reporting

- **Data Verification**
- **Missing Data**
- **Follow Up**
- **Printing a Case**
- **Extract for analysis**
- **Summary Reporting**



Influences on Web Uptake

- **Existing Hospital systems**
- **Budget**
 - Pay data collectors
- **Carrots**
 - Reporting
 - Access to their data



DEPM Current Web-based Projects

- **Victorian State Trauma Registry (VSTORM)**
- **Victorian Orthopaedic Trauma Outcomes Registry (VOTOR)**
- **Hyperbaric Oxygen in Lower Limb Trauma (HOLLT)**
- **Haemostasis Registry**
- **Australasian Society for Cardiothoracic Surgeons (ASCTS - In Progress)**
- **National Burns Registry (In Progress)**
- **Australian Rheumatology Association Database (ARAD – In Progress)**





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