Electronic Medical Record: Data Collection and Reporting for Spinal Cord Injury – including International SCI Data Sets and Standards for Neurological Classification of SCI.

Fin Biering-Sørensen, MD, Clinic for Spinal Cord Injuries, Rigshospitalet, University of Copenhagen, Denmark; Gianna Maria Rodriguez, MD, Physical Medicine and Rehabilitation, University of Michigan Hospital System, Ann Arbor, Michigan, USA; Stacey Cohen, PT, Clinical Informatics, Mount Sinai Health System, New York, NY, USA

Introduction to Epic:
EpicCare Inpatient and EpicCare Ambulatory are two core applications in Epic. Encounters in each context differ, therefore care must be taken while setting up outpatient systems. The tools are two-way interfaces in a standardized manner to capture discrete data. This information can be extracted for analysis through Epic’s reporting infrastructure: Reporting Workbench, Clarity, and the Caboodle database warehouse, etc. Preparation is needed to design and create Smartforms and flowsheets to allow ease of storing, retrieving, and displaying data.

Flowsheets are the backbone for most documentation. They offer integration of entered data across health professionals. They capture information as discrete data, and Epic-released flowsheets can be shared across institutions through Special Updates from Epic. Flowsheets capture longitudinal data through Epic flowsheets, as they can be filed out multiple times during an encounter. Smartforms are highly customizable assessments to acquire problem or specialty-specific data. Answers to Smartform questions are recorded in SmartData Elements and are available across all applications. Smartforms are accessible from the patient portal.

With Epic one has access to all the information in clinical notes, orders, medications, results from diagnostic investigations, communications, etc. The tools can be filled out multiple times during an encounter. SmartForms can be shared across institutions through Special Updates from Epic. SmartTools help document information. SmartTexts and SmartPhrases generate text blocks or templates that can be used to write notes or SmartLists.

Use of Epic in SCI rehabilitation for doctors, nurses, physio- and occupational therapists:

International SCI Data Sets
Approved and finalized international Spinal Cord Injury SCI Data Sets (Biering-Sørensen, F.; Chiaravalle, S. Delphi Model to Create, Pilot, Modify 6 Longitudinal Spinal Cord Injury Data Sets; Spinal Cord, 2011; 49:495-506.)
- Core
- Spinal Cord Injury
- Spinal Interventions and Surgical Procedures
- Non-traumatic SCI
- Lower Urinary Tract Function
- Urinary Tract Infection
- Urodynamic
- Urinary Tract Imaging
- Blood Function
- Female Sexual and Reproductive Function
- Male Sexual Function
- Musculoskeletal
- Upper Extremity
- Pain
- Cardiac/Respiratory Function
- Pulmonary Function
- Endocrine and Metabolic Function
- Skin and Thermoregulation Function
- Activity and Participation
- Quality of Life

Functional Outcome Measures made as Flowsheets in Epic:
- Spinal Cord Independence Measure (SCI-MRI)
- Canadian, Model of Occupational Performance (COMP)
- Gugging Swallowing Screen (GSS)
- Forced Vital Capacity (FVC)
- Peak Expiratory Flow (PEF)
- Modified Ashworth Scale (MAS)
- Penn Scale; Grass and Release Test; Timed Upright and Go (TUG); Berg Balance Scale; Walking Indeks Spinal Cord Injury (WISC); 6 Minutes Walk Test (6MWT); 10 Meters Walk Test (10MWT); Wheelchair Skills Test.

SmartForms implemented in Epic:
The Core Data Set and 19 Basic Data Sets are implemented in SP’s instance of Epic. However, some dataset data elements, e.g. history questions, are already tracked in Epic, so there exists a question of where and how to track this data. All of the most up to date International SCI Data Sets and the relevant references are available from the ISCoS website:
http://www.iscos.org.uk/international-sci-data-sets

Tools for reporting in Epic:
- Registros for ESICM: a data infrastructure that collects data from patients who match a specified definition, plus a list of relevant clinical information about those patients to simplify and speed reporting on population subsets. Epic’s contact-based registries collect patient encounters of a specified type and gather information about documentation compliance and consistency across those encounters.

- Radar provides a centralized location for reporting tools and metrics. Using home workspaces called dashboards, Radar users can view, access, and manipulate reports.

- Caboodle, an enterprise data warehouse platform, can help more easily report on a variety of topics from allergies and procedure orders to hospital admissions. Caboodle can combine Epic and external data in reports, dashboards, and self-service reporting tools.

- SlicerDicer is a self-service reporting tool allowing customizable data exploration abilities to sift through data better than SmartForms.

- Reporting Workbench is a reporting tool available across Epic applications. Users can run administrator-created reports or build reports from templates. These reports can display discrete data captured in flowsheets and SmartData Elements via SmartForms, and these reports can be exported into Excel files for research purposes within and across institutions.

- All Patients with SCI Documentation

Interfacing with external registries and databases requires discussions with your Epic contacts and data infrastructure champions on the feasibility of such a data exchange.

Present development: Work is being done to build various SCI specific instruments and data elements into Epic’s Foundation System. This will eliminate the need to use a different system to fill out and report on SCI data.

Disclosure Statement: Gianna Maria Rodriguez, Stacey Cohen, and Fin Biering-Sørensen are users of Epic, but have no economic relationship with Epic.

© 2017 Epic Systems Corporation. Used with permission.