

# CROWNWeb: The evolution of kidney data management

## Part 2 of a three-part series

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### Abstract

The Centers for Medicare & Medicaid Services is developing a Web-based application, CROWNWeb, which is designed to update mandated electronic data entry and retrieval for dialysis facilities nationwide. Part 2 of this three-part series introduces CROWNWeb to the ESRD community. It discusses the release and impact of the recently released ESRD Conditions for Coverage, and provides an overview of the CMS CROWNWeb system, highlighting features and functionality.

### Background

The Centers for Medicare & Medicaid Services published updated Conditions for Coverage for End-Stage Renal Disease Facilities on April 15 in the *Federal Register*. These regulations modernize Medicare's ESRD health and safety Conditions for Coverage and update CMS standards for the delivery of safe, high quality care to dialysis patients. These are patient-centered revised regulations that reflect improvements in clinical standards of care, and require the use of more advanced technology in the ongoing goal of improving the quality of care to dialysis patients. These new Conditions for Coverage are available for review and download at the *Federal Register* website ([www.gpoaccess.gov/fr/Index.html](http://www.gpoaccess.gov/fr/Index.html)).

Although these final rules include many changes that affect ESRD facilities, the requirement for electronic data submission is an element of the new regulations that will have a universal impact across the provider community. The Conditions for Coverage (section §494.180 (h) - p. 20484) 1 state:

“Effective February 1, 2009, the dialysis facility must furnish data and information to CMS and at intervals as specified by the Secretary. This information is used in a national ESRD information system and in compilations relevant to program administration, including claims

processing and reimbursement, quality improvement, and performance assessment. The data and information must:

- 1) be submitted at the intervals specified by the Secretary;
- 2) be submitted electronically in the format specified by the Secretary;
- 3) Include, but not be limited to:
  - i) cost reports
  - ii) ESRD administrative forms
  - iii) patient survival information
  - iv) existing ESRD clinical performance measures, and any future clinical performance standards developed in accordance with a voluntary consensus standards process identified by the Secretary.”

To satisfy these requirements, CMS has announced the release of CROWNWeb, a Web-based data collection system designed to collect patient data, clinical performance measures (CPMs), and facility information. This article, the second in a three-part series (see *NN&I*, March 2008 for Part 1), examines CROWNWeb in greater detail, and explores how networks and providers will use it to increase the quality and timeliness of patient data, improve patient care, and satisfy the new Conditions for Coverage.

### CROWNWeb—What will it do?

CMS has designed CROWNWeb to collect demographic and clinical records for each ESRD patient and administrative and personnel data for each facility. The major components of CROWNWeb

allow aggregation of the patient clinical data to provide facility-level CPMs and furnish vital information regarding each ESRD facility, including current lists of key personnel and patients within each facility. CROWNWeb's security features allow users to be assigned specific roles in CROWNWeb based on their job responsibility, and these role configurations will grant or deny access to patient information. These role assignments and the associated relationships allow CMS to track activity within CROWNWeb at the patient level, ensuring accountability and attention to patient care throughout that patient's time in the ESRD system.

When a new dialysis patient arrives at a facility, a staff member will log in to CROWNWeb and use a Web-based form to create and submit a CMS-2728 (the form CMS requires when entering the patient into the ESRD Benefit System) for the new patient. As the staff member completes the data entry online, CROWNWeb employs built-in validation components that ensure that all required information on the 2728 is filled in properly. If necessary, CROWNWeb allows the user to save a form and come back to it later. Once complete, the facility will only need to print copies of these forms for the Social Security Administration (SSA), which still requires a paper version signed in blue ink, before submitting the data electronically through CROWNWeb. Once entered, users can quickly bring up a patient's completed 2728 using a simple search mechanism. Other forms, such as the CMS-2746 (for notification of patient death), will be completed and submitted in a similar fashion.

CROWNWeb also features an Electronic Data Interface (EDI) screen, a feature that allows select facilities to upload large volumes of data to CROWNWeb. These volumes of data

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must adhere to a strictly enforced eXtensible Markup Language (XML) format in order for CROWNWeb to read and import the data properly. This feature will allow users to submit data for multiple patients and even for multiple facilities within the users' "scope" by simple electronic transfer of information already entered into facilities' in-house data system.

After dialysis facilities enter data, CROWNWeb can generate reports to assist the facilities in maintaining required records and ensuring that Social Security receives required information. Initially, these reports will include:

- ▶ Patient roster reports, showing which patients are currently on census at a facility
- ▶ Facility personnel reports, showing which staff members are currently working at a facility

- ▶ Activity audit reports, showing what data has been entered in CROWNWeb, and who at the facility entered it
- ▶ Electronic data interchange reports, showing data has been submitted through EDI, and if it was successfully received.

**Data—What will CROWNWeb collect?**

CMS has designed CROWNWeb to function as the ESRD community's central patient database. Accordingly, the system will collect only the data critical to ensuring excellent patient care, as well as promoting and validating constant quality improvement from ESRD facilities. The Feb. 1, 2009, release of CROWNWeb will collect:

- ▶ Facility information, including personnel and practitioner identification, location, and operating hours

- ▶ Patient attributes (2728 forms, including re-entitlement and supplemental forms, and 2746 forms)
- ▶ Patient status information (admit/discharge records, transfers, etc.)
- ▶ Patient clinical information (treatment information such as modality, number of treatments per week, patient-specific labs, vascular access methods, and required CPM measurements).

As CROWNWeb evolves from the first release, CMS will enhance the data collected and the reports that individual facilities can generate to continuously improve the individual facility's ability to monitor patient care and outcomes on a real-time basis. However, CMS has designed both the initial and future functionality of the CROWNWeb system to support established collection goals and requirements.

**Table 1. User roles and permissions in CROWNWeb**

User Role Types	Facility				Network			
	Facility Viewer	Facility Editor	Facility Batch	Facility Administrator	Network Viewer	Network Patient Editor	Network Facility Editor	Network Administrator
Submitted Facility	R	RU	N/A	R	R	R	CRUD*	R
Saved Facility	N/A	N/A	N/A	N/A	R	R	CRUD	R
Submitted Facility Personnel	R	CRUD	N/A	R	R	R	CRUD	R
Submitted Patient Attributes	R	CRU	N/A	R	R	CRUD*	R	R
Submitted Patient Forms (1)	R	CR	N/A	R	R	CR	R	R
Saved Patient Forms (1)	R	CRUD	N/A	R	R	CRUD	R	R
Submitted Patient Access (2)	R	CRUD	N/A	R	R	CRUD*	R	R
Submitted Clinical (3)	R	CRUD	N/A	R	R	CRUD*	R	R
User Scope Management	N/A	N/A	N/A	CRUD	N/A	N/A	N/A	CRUD
Metadata (e.g. Audits/Logs)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EDI Functionality (4)	N/A	N/A	CRUD	N/A	N/A	N/A	N/A	N/A
Gap Patients (5)	N/A	N/A	N/A	N/A	R	RUD*	N/A	R
PART Dataset (6)	R	RU	N/A	R	R	RUD	R	R

\* This role can only delete those facilities, patients, or admits/discharges with no dependencies (e.g. facility has no patients assigned to it or patient has no forms).

1. Forms refers to the 2728 and 2746 forms for a patient.
2. Patient access includes admission, transient-status, and discharge records for a patient.
3. Clinical includes lab data and treatment records for a patient.
4. Patient attributes will be created and updated as part of the EDI processing for new patients—EDI access will be limited to Facility Batch users.
5. Gap patients are those patients that have been discharged from all facilities but are not deceased.
6. PART includes data that are required on a regular basis in order to maintain the ESRD Patient Registry (e.g. patient address, facility).

### Users—Who will use CROWNWeb and why?

CROWNWeb provides the channel to allow users at every level of the ESRD community to perform key job functions from a single interface. From a facility-level data entry clerk to the ESRD Network administration level, CMS has built CROWNWeb with security, accountability, and patient care in mind.

### Facilities

At the facility level, there are four established roles within CROWNWeb:

- ▶ facility viewer
- ▶ facility editor
- ▶ facility batch
- ▶ facility administrator

Facility viewers can only see—not edit—the data for their facility, and can view their own basic reports. Facility editors have the same access, but also have the ability to edit patient and personnel data. Facility batch users can only submit data through CROWNWeb's EDI function, and facility administrators have the same basic read access that facility viewers have, but can also assign and remove levels of access to users within their facility (for example, “promoting” a user from a viewer to an editor).

### The role of the Networks

The ESRD Networks have regulatory level access that will allow them to manage the facilities and personnel within their Network. At this level, there are also four roles within CROWNWeb, each with a similar but slightly different set of responsibilities: network viewer, network patient editor, network facility editor, and network administrator. Network *viewers* have read-only access to all the data for the facilities in their Network, and can run reports on “gap” (missing or unaccounted for) patients. Network *patient editors* can edit patient events, such as admitting and discharging a patient, and clinical data for a patient, as well as taking the necessary action to identify and follow up on

gap patients in CROWNWeb. Network *facility editors* can create new facilities within their network in CROWNWeb, as well as editing existing facility and personnel data. Lastly, Network *administrators* have the same basic read access that Network viewers have, but can also assign and remove levels of access to users within their network (for example, “promoting” a user from a viewer to a patient editor).

### Data collection—What's the impact to ESRD providers?

Given the scope of CROWNWeb and the rapid approach of the deadline specified in the Conditions for Coverage, there is an understandable concern as to how CROWNWeb will affect ESRD facilities, especially those with existing in-house data management software packages. CMS understands the need to minimize replication of data entry,

and has included the EDI feature in CROWNWeb to allow users to submit large quantities of data at one time, without duplicative data entry. Providers will be able to mine existing data in their in-house systems for the data required by CROWNWeb, ensure that the data meets CROWNWeb's stringent data file specifications, and submit the data in bulk format to CROWNWeb.

Although EDI access will not be available to all dialysis providers in CROWNWeb Release 1.0, a limited number of dialysis organizations have volunteered to test the usability and performance of the feature. The decision to limit access to this feature for the initial releases of CROWNWeb was made by CMS due to the experience of the chosen organizations in mining and manipulating data and the need to limit the amount of incoming bulk data in the first releases of CROWNWeb. However, even these EDI-enabled facilities will be required to perform certain tasks (2728 forms, 2746 forms) in CROWNWeb, just as any other facility would.

CMS understands the need and desire to increase the availability of this feature to any facility that is able to meet the XML specifications of CROWNWeb. System capacity and an increase in access to EDI will be evaluated with each release as the system permits, with the intent to open access to the EDI function to a greater audience in the future. Facilities not included in the group allowed EDI functionality in the initial release will use CROWNWeb's single user interface to enter and submit ESRD data to CMS and the Networks after the Feb. 1, 2009, deadline mandated by the Conditions for Coverage.

### Technical requirements—What will facilities need to use CROWNWeb?

CROWNWeb is a client-server application, where dialysis facilities communicate via the Internet with the server. This configuration transfers most of the heavy data crunching and other work that would normally be done on the facility's computer to the server. This arrangement reduces the system requirements on the facility computer; CROWNWeb requires only the tools and hardware needed to access the program (Windows Internet Explorer 6.0) and view generated reports (Adobe Reader) at the facility computer level. Table 1.0 details CROWNWeb's requirements, and also includes suggested system enhancements to provide a smoother, faster CROWNWeb experience.

### Help—CROWNWeb training and education

CROWNWeb's release represents an evolution in the way that ESRD facilities will interact with patient data, as well as with the ESRD Networks. With many new and shifting responsibilities and a new data entry system to use, CMS recognizes the need to roll out accessible, thorough training to help facilities get up-to-speed quickly. CMS will accomplish this goal through a training approach using two distinct but critical delivery venues.


First, CMS is developing a website where users can access the latest news, developments, and updates on CROWNWeb as the Feb. 1, 2009, deadline approaches. Central to this website are the CROWNWeb training materials, which will run directly in Internet Explorer on any computer that meets the CROWNWeb

minimum requirements. These training materials use Flash-based methodology to provide an interesting and interactive learning experience. The modules will be broken down into tracks for specific user roles and functionality, and will cover all of the information facility personnel will need to use CROWNWeb efficiently. Of particular note, this Web-based training will be available at no charge to the community, and access will be available 24 hours a day, seven days a week.

Additionally, CMS is finalizing plans for a nationwide training rollout, to begin in December 2008 and run through February 2009. These will be two-day sessions held in select major metropolitan areas across the country, and will provide facilities with a hands-on training opportunity and the benefit of having an expert present to field any questions. As with online training, these training sessions will be offered at no cost to attendees, with the exception of any travel and lodging costs incurred to attend.

CMS will release more information about the CROWNWeb website, as well as training dates and locations, as soon as the information is finalized.

### Resources

*Federal Register* Part II—42 CFR Parts 405, 410, 413 et al. Medicare and Medicaid Programs; Conditions for Coverage for End-Stage Renal Disease Facilities; Final Rule. United States Department of Health and Human Services and the Centers for Medicare & Medicaid Services. April 15, 2008. Page 20484. [www.cms.hhs.gov/CFCsAndCoPs/downloads/ESRDfinalrule0415.pdf](http://www.cms.hhs.gov/CFCsAndCoPs/downloads/ESRDfinalrule0415.pdf). Accessed on April 25, 2008 

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