MEDITECH's Oncology Solution Integrates Cancer Management

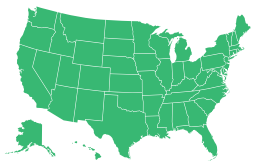
Executive Summary

Cancer remains a significant global epidemic with cases on the rise worldwide (see Figure 1). The majority of cancer diagnoses — 54% in the United States[1] and 66% in UK[3] — are in people over 65 years old. With the entire baby boomer generation now crossing this threshold, the epidemic shows no signs of slowing down.

However, over the last two decades, changes in lifestyle and technological advances aiding in early detection has dropped the death rate 23%.[1] The increase in diagnosed cases coupled with an increase in the 5-year relative survival rate has led to a greater demand for cancer care and survivorship support.

Figure 1

Projected Diagnosed Cancer Cases Per Day

United States	Canada	United Kingdom
		
Over 4,500 Americans[1]	On average, 555 Canadians[2]	More than 1,000 people in the United Kingdom[3]

A Sophisticated Solution for Managing Complex Care

In confronting today's myriad of cancer challenges, MEDITECH's Oncology solution integrates efficient, specialty-driven workflows into the EHR, enabling oncologists to coordinate patient care across all care delivery settings while also bridging gaps in care.

Knowledge-driven clinical content and embedded clinical decision support help cancer teams manage and adjust complex treatment regimens. National Comprehensive Cancer Network® (NCCN) Templates® will be embedded as standard content to help facilitate integrated CPOE ordering, and provide links to the corresponding Clinical Practice Guidelines® in Oncology. These templates include chemotherapy and immunotherapy regimens, along with literature support, supportive care agents, monitoring parameters, and safety instructions. Additionally, integrated revenue cycle solutions, support for dose banding, and in-depth analytics help secure reimbursement and funding while also cutting costs and eliminating waste.

Efficiency

The swell of cancer patients is growing at a higher ratio than the staff to support them.

Care Coordination

As rising costs lead cancer care to shift to lower cost outpatient settings, there is a growing need to share information and coordinate care across care settings and from miles away.

Patient Safety

With a growing number of clinical trials and medication advancements, such as oral oncolytics and combination therapies, care teams require mechanisms for safely managing more complex medication regimens.

Revenue Realization

The large, upfront costs of cancer care requires clinics to find effective ways to expedite reimbursements and secure appropriate funding.

Tools for Improving Efficiency

The American Cancer Society projects an estimated 1.7 million new cancer cases in 2017.[1] To account for this rise, cancer clinics will face the challenge of either increasing staff or improving their efficiency.

MEDITECH's Oncology Management solution improves the efficiency of your oncology team by embedding clinic activities into each staff member's workflow. Benefits include:

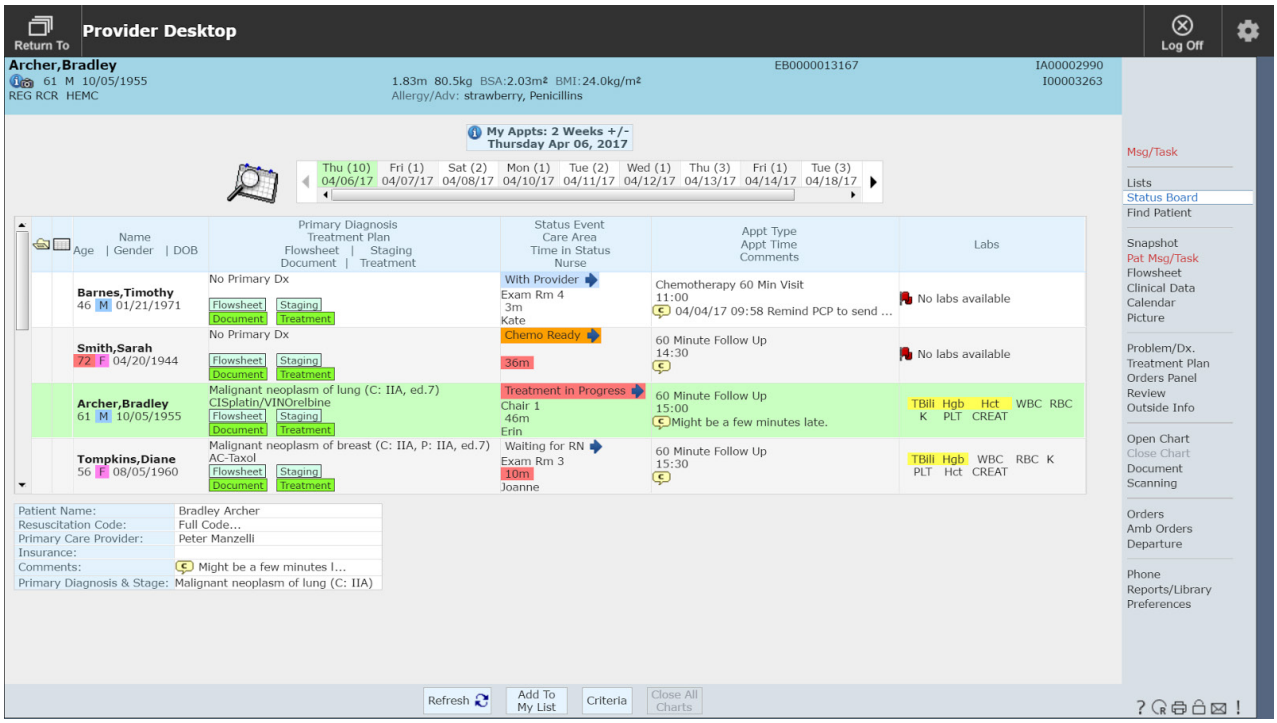
- Personalized workflow based on staff role.
- Unlimited flowsheets tailored to diagnosis or specialty.
- Dynamic and flexible data summaries that consolidate key patient data from across your health system.

Personalized User Workflows

Oncology cancer teams manage daily tasks through roles-based, workflow-driven desktops. For example, the Oncologist Desktop provides the physician with a centralized schedule and direct links to the flowsheet, AJCC TNM staging information, documentation, and treatment plans. Vitals, lab results, and other timely information is pushed out to the provider and color-coded to indicate abnormal results and severity. Actionable notifications prompt immediate response to adverse conditions.

The Oncologist Desktop automatically displays the appropriate treatment based on the patient's diagnosis and related clinical indication. Through multi-cycle ordering, oncologists can map out treatments months in advance, with built-in flexibility to adjust the treatment plan as needed.

Figure 2 - Oncologist Desktop



Oncologists have the option to start/stop, hold/resume, and move dates for any of the patient's treatment cycles. They can see the patient's current cycle, repeat additional cycles, or even order multiple cycles at once. Since the start date and time for treatments often vary, oncologists can place orders with date ranges, which can begin when the patient arrives at the clinic and then be adjusted according to the patient's condition.

Similarly, the Clinical Care Desktop provides seamless integration with MEDITECH's Patient Care System and enables nurses to document assessment and intervention data within the worklists, medication administrations — including infusions — on the Medication Administration Record (MAR), and blood transfusions on the Transfusion Administration Record (TAR).

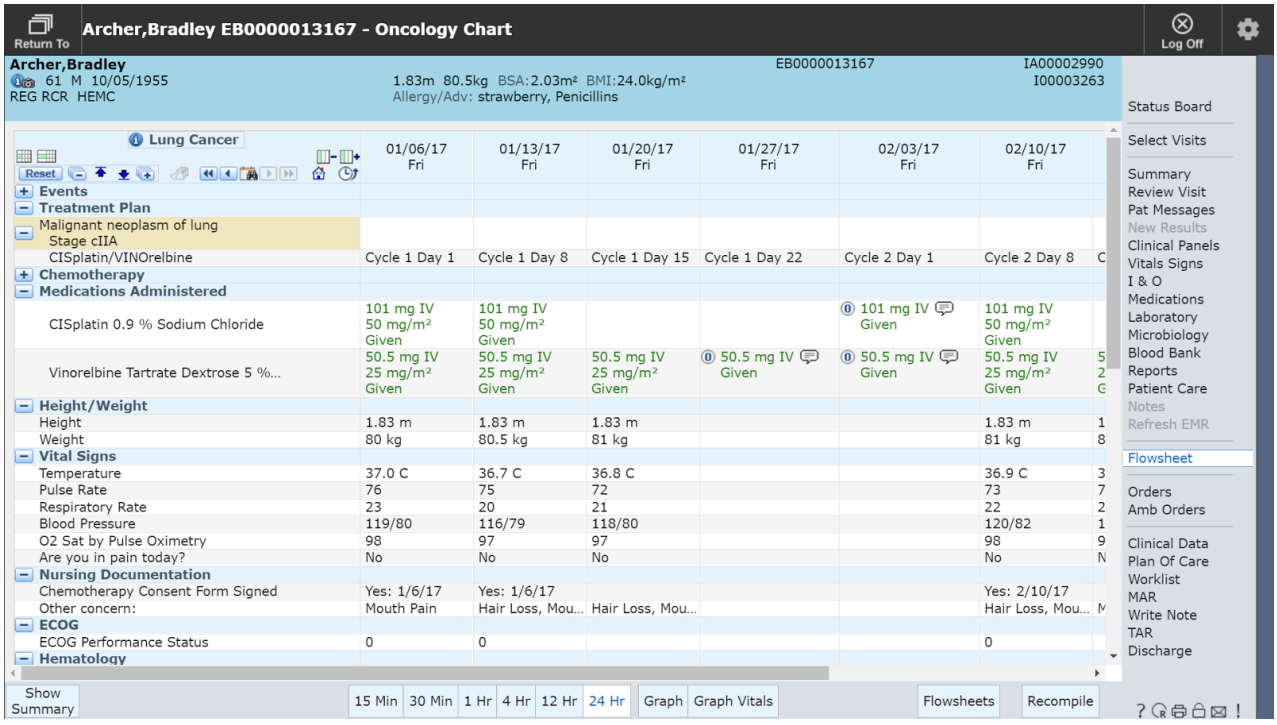
Use customized status boards to view patients based on similar criteria, such as a particular diagnosis or specific treatment plan:

> **All patients who are diagnosed with breast cancer, on an AC-Taxol treatment regimen in which active cycles are ending within the next 30 days, can auto-populate onto a custom status board.**

Unlimited Flowsheets

Clinicians use centralized flowsheets to easily view a wide range of data and act upon what is most relevant to them. Flowsheets are facility-defined with the option to view data in a variety of formats reflecting the patient's diagnosis or physician/consultant preference.

Figure 3 - Oncology Flowsheet



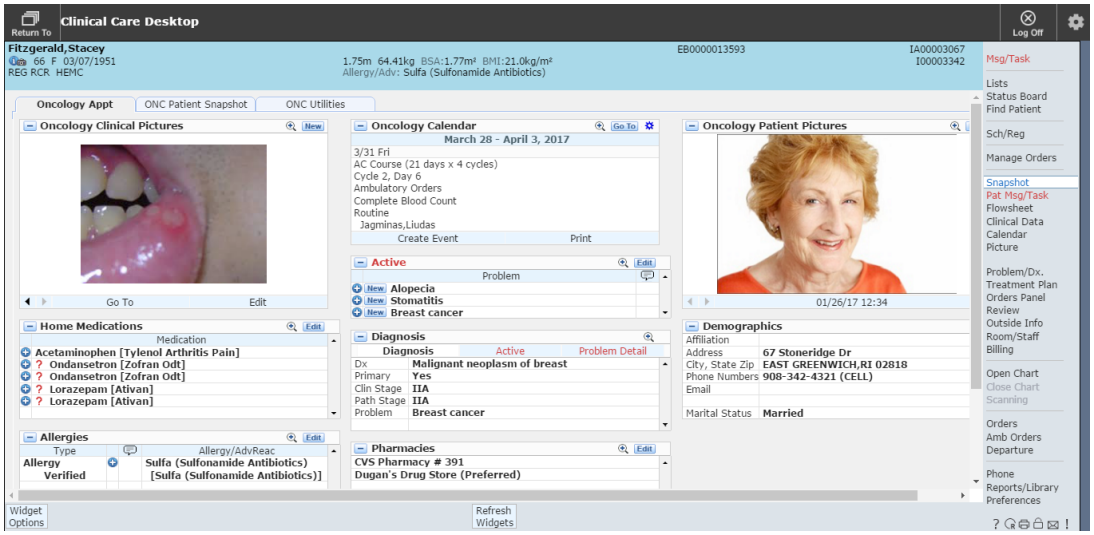
Flowsheets display treatment cycle dates and other vital information, including all laboratory results, diagnostic images, chemotherapy treatments with dose modifications, nurse and physician documentation, vital signs, etc. Because flowsheets are patient-based rather than visit-based, clinicians can view data chronologically across all patient accounts/visits to evaluate data trends over lengthy periods of time. Based on this knowledge, providers can hold, move, and/or resume individual medications, a specific cycle, or all ordered treatment for their patients from a single screen. Providers can receive notification of all chemo and treatment reviews required for any given day.

Likewise, nurses can easily document interventions, assessments, and patient concerns by moving between the patient's flowsheet, Plan of Care, MAR, and worklist from within the nursing desktop. To save time, worklist items are presented on a single screen and can auto-populate based on the patient's location, diagnosis, problems, and/or treatment plan.

Dynamic, Personalized Patient Summaries

Customized data displays provide a snapshot of timely patient information on one screen. Oncology staff can personalize this view on demand with a variety of dynamic data elements, such as clinical images. These clinical images, which can also be annotated, help care providers track the patient's physical progression throughout the course of treatment, aiding their preparation for the next step in the care plan. Clinicians can view information most relevant to them by choosing to see either clinical or demographic information, or both.

Figure 4 - Oncology Patient Snapshot



Enabling Care Coordination Across All Care Delivery Settings

With more patients receiving chemotherapy in outpatient settings, clinicians face the challenge of ensuring continuity as patients transition between care environments. Lab work is often processed within an inpatient setting while medications are sent to a pharmacy located outside the outpatient clinic. And, as the patient's condition changes, care may also evolve through long term care, home care, hospice, ambulatory, and acute care settings.

Using MEDITECH's Oncology Management solution, clinicians can navigate these changes with:

- Easier, more informed transitions of care.
- Better coordination of patient appointments and procedures through centralized scheduling.
- Enhanced consumer experience and engagement to support both patients and their families.

Unite Your Care Team

MEDITECH's Oncology Management solution supports a full spectrum of clinicians and staff members — including oncologists, practice nurses, medical assistants, treatment room nurses, pharmacists, intake coordinators, social workers, nurse navigators, and administrative staff. Sharing data throughout MEDITECH's centralized EHR improves collaboration and communication among care providers and eliminates manual transport and transcription of vital treatment information. For example, administrative staff can immediately check in a patient, electronically communicate the patient's arrival, assign a nurse and oncologist, and alert staff that the patient is in the waiting room from one centralized desktop.

Nursing status boards notify clinicians of timely tasks, such as:

- ✔ Blood is ready for pickup
- ✔ Chemotherapy medications are ready for administration
- ✔ A procedural consent must be re-signed
- ✔ Medication reconciliation is due
- ✔ Vital signs must be obtained

Inpatient status boards can also be built to alert providers when oncology patients are admitted into the inpatient setting — eliminating the need to switch to another system.

The patient's problem drives clinical documentation, suggested treatment plans, and patient education and instructions. Information flowing from other parts of the EHR — such as nursing documentation, patient medications, and laboratory and imaging results — provides the integration necessary to simplify a provider's documentation by populating the appropriate fields to pass along to the next care setting.

Integrated and secure messaging further enhances direct communication among staff, relaying messages and patient concerns without having to track staff down or pass along verbal messages.

Enable Seamless Care Transitions

Smooth transitions of care are imperative as oncology patients meet with various providers and move between the acute, home, and clinic care settings. Within the ED, staff can view chemotherapy history to know the patient has an implanted port that can be accessed for blood and administration of IV fluids, saving the patient extra needle sticks. Since not all chemotherapy is infused, organizations can set up 'Special Indicators' to alert providers that the patient is taking an oral chemotherapy prescription.

As patients are admitted, nurses can reference vital information documented within Oncology, such as when the

central line dressing is due to be changed. Additionally, outpatient orders can be transitioned to the inpatient account if the oncologist wants the patient to continue receiving treatment as an inpatient. Those orders not administered can be transitioned back to the outpatient account upon discharge. Any information documented during the patient's visit is available within the oncology clinic following discharge. Having a fully integrated EHR means data is never siloed in another system or isolated in paper charts — it is accessible to clinicians when needed most.

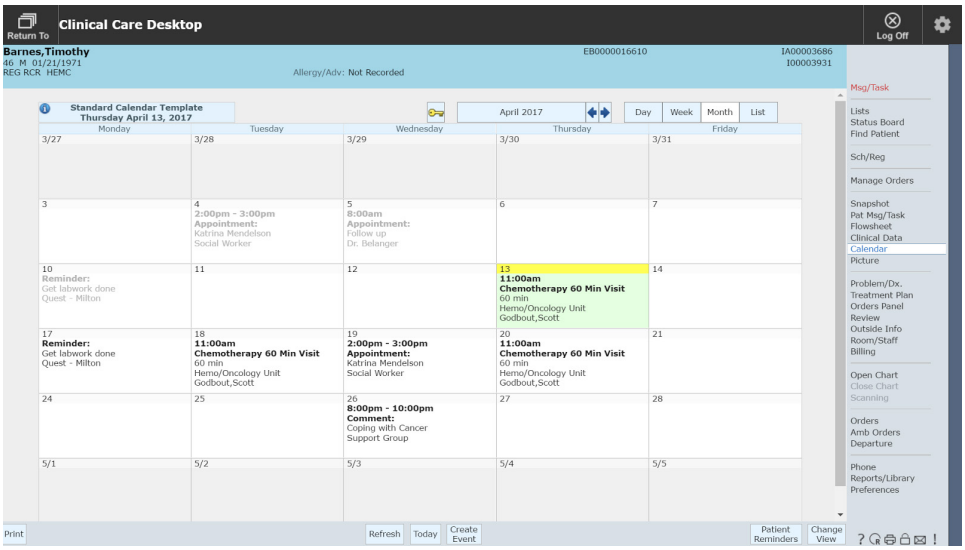
"Our organization operates a number of different geographical sites, and it's really important that we're able to have full access to the electronic patient record wherever we are. This has made the care we deliver safer."

-Dr. Richard Griffiths, CCIO, Clatterbridge Cancer Centre NHS Foundation Trust

Centralize Scheduling

Oncology schedulers can view scheduled appointments across the healthcare organization to better coordinate visits between the ambulatory practice, hospital, and/or oncology clinic. By coordinating tests and procedures, patients and their family members minimize doctor visits and experience more efficient care delivery.

Figure 5 - Oncology Patient Calendar



Enhance the Consumer Experience

Once appointments have been scheduled, nurse navigators can help keep patients organized by selecting from a variety of customizable oncology-specific calendars. Patients can view all their scheduled appointments in one centralized document and clinicians can adjust the calendar view according to their cycles and treatment plans for a more complete picture. Pre-treatment reminders can include medications to be taken prior to chemotherapy or any pre-procedure instructions, as well as meeting dates and times for support groups.

MEDITECH's Patient and Consumer Health Portal provides patients and their families with access to information through a web-enabled device, as well as open communication with their clinicians as their condition changes or issues arise.

They can view and print their oncology appointments; receive reminders related to their oncology care; access visit information and patient education; request prescription renewals; and pay bills online.

Access Information from Outside Parties

Providers participating in state, regional, and community data exchanges can receive Continuity of Care Documents (C-CDAs) and incorporate discrete data elements within the EHR. C-CDAs sent from primary care or other locations provide oncologists with accurate and up-to-date patient information, including lab values resulting from care received outside the cancer clinic, eliminating redundant testing. Likewise, C-CDAs can be sent from the cancer clinic to other healthcare organizations where additional care is provided. Data can also be electronically submitted to public health agencies and cancer registries.

Keeping Patients Safe

Throughout treatment, a patient's physical condition often fluctuates, requiring therapies to be closely monitored for effectiveness. MEDITECH's Oncology Management solution provides clinic staff with the tools they need to safely deliver care including:

- Integrated clinical flowsheets to monitor the patient's condition, on-going treatment, and progress and support clinical decision making.
- Robust clinical decision support and closed-loop chemotherapeutic medication management to prevent errors.

Make Informed Clinical Decisions

MEDITECH's integrated EHR enhances care team communication, as orders immediately update the patient's record and are communicated to all associated ancillary departments. Oncologists can 'dose adjust' directly from Oncology, which communicates back to Pharmacy. Dose edit alerts improve communication between physicians and other departments.

Color-coded laboratory results and vital signs alert clinicians when values are abnormally high or low, prompting immediate action.

Lifetime inpatient data is viewable within the flowsheet in real time, alongside data from other care areas, such as home care and hospice — which can be added to the flowsheet from within the centralized EHR or accessed through the reports panel. Clinicians can monitor current status while trending overall progress to determine oncology treatment effectiveness.

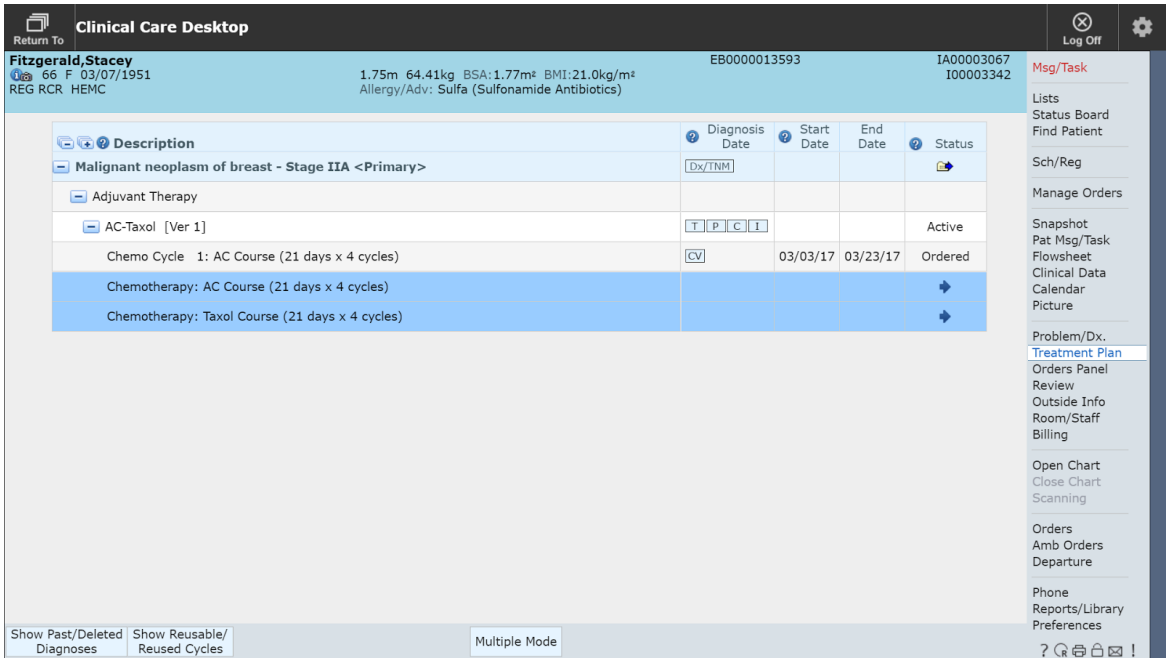
Customize Treatment Plans

As each patient's chemotherapy treatment may be modified to support frequent adjustments throughout the course of care, flexibility in the ordering and administration process is critical.

Standard AJCC TNM Staging protocols offer additional decision support for selecting cancer treatment protocols.

These regimen and evidence-based treatment plans support multidisciplinary ordering, while centralized ordering helps oncologists group medications and tests that should be ordered together. Associated data — such as labs, clinical images, or other data needed for concrete decision-making — can also be obtained from within the treatment plan ordering screens. Treatment plans can be tailored by adding or removing orders to best meet each individual cancer patient's needs.

Figure 6 - Provider Desktop - Treatment Plan



Close the Loop on Medication Management

MEDITECH's closed loop chemotherapy medication management solution ensures timely communication of medication information across clinical teams and helps prevent potential interactions and adverse reactions.

MEDITECH's Closed Loop Medication Process

CPOE

- Full interaction and conflict checking.
- Evaluate dose adjustment criteria by med/patient (e.g. Flag if patient platelet count drops below 100 with recommended adjustments.)
- Auto prompting for co-signature.

Pharmacy

- Double verification of interactions and conflicts.
- Standard robot interfaces automate preparation and ensure right medication, right dose, for right patient and right condition.

Medication Administration

- Barcoded medication verification to ensure all rights.
- Prior to chemotherapy administration, indicator alerts the nurse of changes oncologist has made to a dose within the treatment cycle.

Medication Sequencing

- Option to assign numbers to medications within treatment regimens to reenforce standard protocols and ensure safe administration.

Chemotherapy medications present a unique challenge since many must be mixed according to the patient's current weight, which often fluctuates significantly between treatments and especially over the course of the treatment plan. MEDITECH's Oncology Management automatically calculates a patient's proper dosage based on the most updated height and weight information while the physician is placing orders, and intuitively knows whether to use Body Surface Areas (BSA) or "Target Area Under the Curve" (AUC) calculations. Alerts warn clinicians if a patient's documented weight is out of date or has changed significantly.

A Chemotherapy Review feature supports final review and sign-off for chemotherapy orders once all pretreatment diagnostics and other relevant information has been reviewed. Review requirements are configured at the individual medication level within each chemotherapy regimen.

"MEDITECH's Oncology delivers everything related to cancer care in just one application — whether it involves prescribing medications, dispensing from the pharmacy, administering chemotherapy, or documenting patient progress. And with its integrated approach, even programs outside of oncology can access that information in a timely way."

-Lisa Lun, RN, BScN, MA(Ed), CHPCN(C), Clinical Coordinator, Humber River Hospital

Improving Revenue Realization

In the United States alone, cancer-related costs may reach as high as $173 billion by 2020[4] if current growth rates continue, according to the Journal of the National Cancer Institute. These costs are exacerbated by the large number of uninsured and underinsured patients. Today, approximately 35 million non-elderly adults remain uninsured and an additional 29 million individuals are underinsured based on high deductibles and out-of-pocket expenses.[5] Coupled with high treatment and prescription costs, having the appropriate solutions to ensure timely and maximum reimbursements is critical.

MEDITECH's integrated Revenue Cycle solution helps maximize reimbursement by gathering the right patient information upon initial contact, and continuing throughout the patient care process through to final billing. Organizations can charge immediately after care is delivered as a byproduct of nursing/clinical documentation, thereby shortening payment time cycle and improving financial sustainability. Nursing documentation also includes the option to link documentation to charges, which flow automatically to Patient Accounting and help prevent lost or inaccurate transcription of charges.

Dose Banding

The high cost of oncology medications often requires a significant upfront investment, which can place organizations in financial risk. Using single-dosed medications when customizing oncology treatment regimens can lead to waste and inflate costs. MEDITECH's support for chemotherapy dose banding can save you thousands per year by enabling multi-dosing. Oncology staff can determine when to send charges to billing and when to bill patients — providing your organization with flexibility for faster billing reimbursement.

Securing Funds

For hospitals in the United Kingdom, accurate and timely reporting is important to secure funds. Our Oncology Management solution can help secure and expedite funding by capturing Procurement and Delivery (OPCS) codes and reporting on the Systemic Anti-Cancer Therapy Dataset (SACT).

A Complete Solution for Complex Care

Oncology care necessitates long-term, individualized, and coordinated care. As cancer treatments continue to advance, providers will have several challenges to face in the years ahead:

- Oncology cases will continue to rise despite staffing limitations. Fully digitized records and personalized views will help prevent gaps in care and give providers the most complete and relevant information they need, when they need it.
- Cancer care is not contained to one location. Health records must span the continuum including inpatient, outpatient, ambulatory, home care, hospice, and long term care settings. A solid combination of integrated and interoperable solutions will give you the full patient picture and provide the most targeted and successful treatment.
- Medication regimens will continue to grow in complexity and vary by patient. Providers need the flexibility to adapt on the fly and measure success. Clinical decision support will help prevent medical errors not only stemming from patient allergies and medications, but other shifting factors like weight, cancer stage, and associated data.
- High costs leave little margin for error. Upfront data capture and in-depth documentation are the keys to faster and more complete reimbursement and funding.

Integrating MEDITECH's Oncology into your EHR Strategy will help you to navigate all the complexities of cancer treatment and improve care for patients, while still meeting your organization's financial goals.

References

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5. HealthWell Foundation: 2012.