MAXIMIZING YOUR CANCER REGISTRY TO ITS FULLEST POTENTIAL

A Partnership: Intermountain Healthcare & CHAMPS Oncology

CHAMPS Oncology

Intermountain Healthcare

Better data saves lives™

champsoncology.com

Understand how your cancer program can benefit from the data your cancer registry is collecting.

Discover how quality cancer registry data can drive your cancer program's care initiatives and result in an overall ROI.

See first-hand how a large healthcare system has utilized their cancer program analytics to track patient migration trends.

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WHAT IS THE CANCER REGISTRY?

Information system designed for the collection, management and analysis of data on persons with a cancer diagnosis.

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3 TYPES OF CANCER REGISTRIES

HOSPITAL-BASED REGISTRY

Maintain data on all patients diagnosed and/or treated for cancer at their facility.

CENTRAL OR POPULATION-BASED REGISTRY

Maintain data on all cancer patients within certain geographical areas.

SPECIAL-PURPOSE REGISTRY

Maintain data on a particular type of cancer or tumors.

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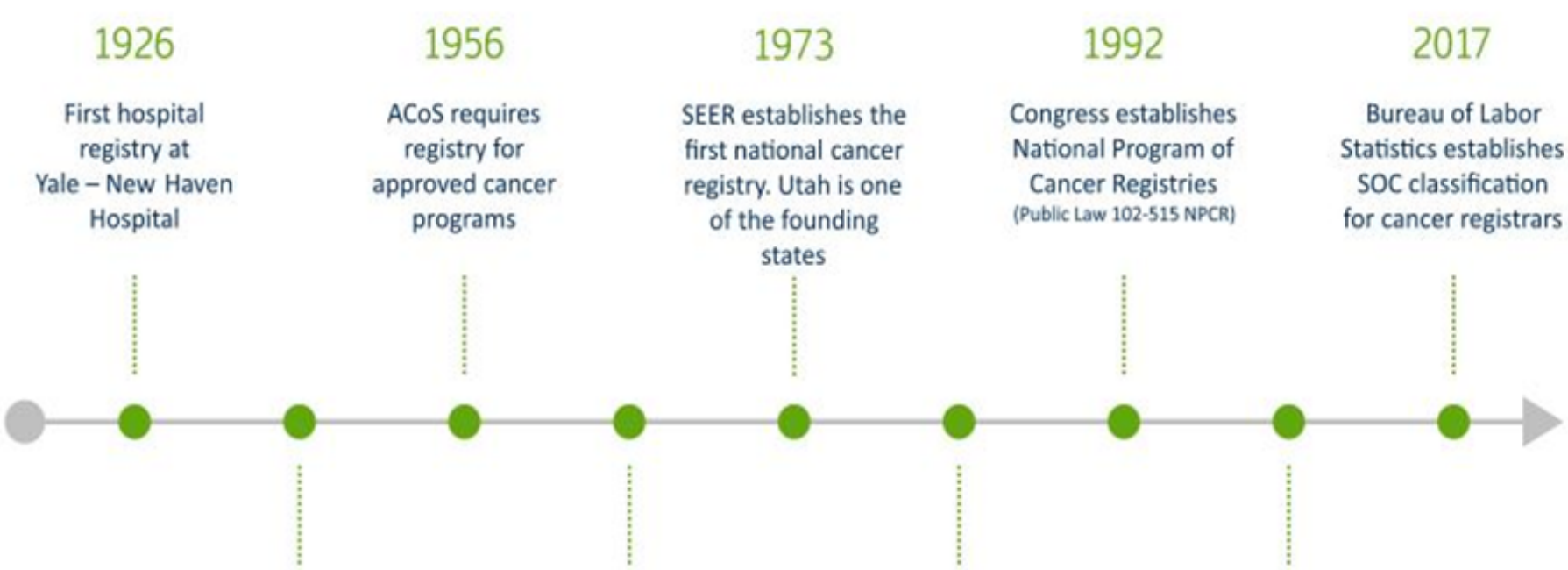
CANCER REGISTRY MILESTONES



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WHO ARE THE STANDARD SETTERS?

WHAT IS A CERTIFIED TUMOR REGISTRAR?

A CTR is a data information specialist that captures a complete history, diagnosis, treatment and health status on patients with a cancer diagnosis.

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DATA FIELDS COLLECTED IN THE CANCER REGISTRY

Patient ID	Cancer ID	Stage at Diagnosis	First Course of Treatment	
Last Name	Date of Diagnosis	Regional Nodes Positive	Surgical Approach at RX Hospital	RX Summary – Treatment Status
First Name	Date of 1st Contact	Regional Nodes Examined	Surg Primary Site done at RX Hospital	Surgical Margins
Accession #	Primary Site	TNM Path T, N, M	Scope Regional LN Surgery Type	Reason for No Surgery
Sequence Number	Laterality	TNM Path Stage Group	RX Hospital – Surg Oth Reg/Dis	RX Summary – Radiation to CNS
Medical Record Number	Grade	TNM Path Descriptor	RX Hospital – Reg LN Removed	Sequence of Surgery and Radiation
Patient ID Number	DX Confirmation	TNM Path Staged By	RX Hospital – Surg Timing	Reason for No Radiation
Address at DX	Casefinding Source	TNM Clinical T, N, M	RX Hospital – Radiation	Reason for No Chemo
County at DX	Histologic Type ICD-O-3	TNM Clinical Stage Group	RX Hospital – Chemo	Reason for No Hormone
Zip code at DX	Behavior Code ICD-O-3	TNM Clinical Staged By	RX Hospital – Hormone	Radiation – Regional Dose: CGY
Marital Status at DX	Class of Case	Lymph - Vascular Invasion	RX Hospital – BRM	Radiation – # of Treatments
Race	DX Treatment	Tumor Size	RX Hospital – Other	Radiation – Treatment Site
Spanish/Hispanic Origin	Comorbidities/ Complications	Extension	RX Hospital – DX/Sta Proc	Radiation – Facility of RX
Sex		Lymph Nodes Status	Date of 1st Positive BX	RX Summary – Systemic Therapy/Surgery Sequence
Age at DX		Mets at DX Status	Date and Type of Surgery	Physician – Managing
Date of Birth		CS Site-Specific Factors 1-25	Date and Type of Radiation	Physician – Follow-Up
Birthplace		Pediatric Staging System	Date and Type of Chemo	Physician – Primary Surgeon
Text – Usual Occupation		Pediatric Stage	Date and Type of Hormone	Treatment Text
Text – Usual Industry		Pediatric Stage By	Date and Type of BRM	Readmission Same Hospital 30 Days
Tobacco History			Facility Referred To	Facility Referred From
Alcohol History				
Family History of Cancer				
Primary Payer at DX				

Outcomes	Case Admin.
Date of Last Contact	Reporting Facility
Vital Status	Abstracted By
Cancer Status	
Recurrence Type	

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WHY MAINTAIN THE CANCER REGISTRY?

IDENTIFY CANCER INCIDENCE TRENDS

EVALUATE EFFECTIVENESS OF TREATMENT

DETERMINE SURVIVAL OUTCOMES

DEVELOP EDUCATION & SCREENING PROGRAMS

CONDUCT CANCER STUDIES ON EPIDEMIOLOGY, DX & TX

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DATA COLLECTION: OUR PURPOSE AND PASSION

Better Data Saves Lives™

Intermountain Administration

State of Utah (SEER)

CoC / NCI

Greater patient care

State and National recognition for Intermountain Healthcare

Increased community awareness

INTERMOUNTAIN SYSTEM

23 hospitals *(*soon to be 24)*

2 States (Idaho & Utah), including Pediatric Hospital

Cedar City Hospital	Park City Hospital
Garfield Memorial Hospital	Riverton Hospital
Dixie Regional Medical Center	The Orthopedic Specialty Hospital
Bear River Valley Hospital	American Fork Hospital
Logan Regional Hospital	Delta Community Hospital
McKay-Dee Hospital	Fillmore Community Hospital
Cassia Regional Hospital (Idaho)	Orem Community Hospital
Primary Children's Hospital	Sanpete Valley Hospital
Alta View Hospital	Sevier Valley Hospital
Heber Valley Hospital	Utah Valley Hospital
Intermountain Medical Center	Layton Hospital
LDS Hospital	Spanish Fork Hospital*coming 2020

INTERMOUNTAIN BUSINESS DECISION

Promote internal Quality Improvement Data by utilizing the Cancer Registry data.
They needed Quality data in a timely fashion with better oversight.

Issues to overcome:

- ✓ Ability to find, hire and train CTRs.
- ✓ Not internal cross-training for CTRs.
- ✓ Regional Directors were overseeing the Cancer Registry with little to no background about the Registry.
- ✓ Business Model moving from Regional Direction to a Systemness
- ✓ Desire to meet not only State & Federal Requirements, but also CoC and NCDB.
- ✓ Need to include component where CHAMPS benefited from the relationship by utilizing Intermountain for CTR "Preceptorship" Programs.

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WHAT IS THE SYSTEMNESS FORMULA?

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PROVEN RESULTS: LEADING EXAMPLES OF SUCCESS

PATIENT VOLUMES (ALL-SITES)

TREATMENT VOLUMES (ALL-SITES)

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SURVEILLANCE EPIDEMIOLOGY AND END RESULTS PROGRAM

The Utah Cancer Registry is one of the original National Cancer Institute SEER cancer registries and much of its data is provided by Intermountain Healthcare.

This information captures people all over the state, including those who live in rural and frontier communities, which reflects Utah's geographical makeup .

This data is essential for understanding cancer trends and for evaluating the impact of cancer control programs throughout the state .

$28 million grant renewed in 2018.

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KEY POINTS TO IMPLEMENT SYSTEMNESS

RESOURCES AND COSTS

- Shared registry software
- Reduced head-count / cost (CTRs and registry staff)
- Centralized management of staff & process

STANDARDIZED DATA

- Same data collection team
- Promote data standards across system
- Allow for system, user-defined fields to monitor special items

SYSTEM QUALITY INITIATIVES / GOALS

- Identify common errors, and educate team
- Reduce quality review hours
- Specialized quality review for SEER data items

ACTIONABLE INFORMATION

- Secure more grant opportunities (NCI, State, Regional, SEER)
- Fulfilling accreditation requirement (NAPBC, CoC, NAPRC)
- Regional marketing efforts – patient population (develop higher utilization)

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CENTRALIZING REGISTRY OPERATIONS

STANDARDIZE & STREAMLINE REGISTRY OPERATIONS

- Casefinding
- Abstracting
- Follow-Up
- Physician Quality Control

OTHER REGISTRY PROCESSES

- Data Submission Policies
- Requests for Data
- System P&P Manual

IMPLEMENT REGISTRY OPERATIONS AT INTERMOUNTAIN HEALTHCARE

TEAM STRUCTURE

Regional Manager

Client Services Manager

Registry Operations Personnel

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IMPACT ON COST

Common System Problems:	CHAMPS Solutions:
Decentralized registry operations	Centralized registry operations
Inaccurate cancer case volumes	Streamline casefinding & abstracting processes
Manual process for registry operations	Automated registry operational processes
Incomplete / missed treatment information	Implement standard operating procedures on abstracting & follow up

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MARKET SHARE REPORTS - COST

CHAMPS insight$_2$oncology®

MARKET SHARE

Market Share

Primary Site Client Specific	Unique Patients †	Annual Cases *	Market Share
Breast	1,211	1,570	77.13 %
Prostate	387	1,473	26.27 %
Ill-Defined Sites **	379	302	125.50 %
Lung	299	652	45.86 %
Colon	290	499	58.12 %
Thyroid	284	471	60.30 %
Corpus Uteri	208	379	54.88 %
Melanoma, skin	208	1,108	18.77 %
Non-Hodgkin Lymphoma	193	449	42.98 %
Kidney	176	346	50.87 %
Bladder	175	398	43.97 %
Rectum	136	231	58.87 %
Brain	128	172	74.42 %
Pancreas	122	256	47.66 %
Lip, Oral Cavity and Pharynx	113	290	38.97 %
Lymphoid Leukemia	89	195	45.64 %
Myeloid and Monocytic Leukemia	86	151	56.95 %
Soft Tissue	78	100	78.00 %
Ovary	72	136	52.94 %
Stomach	68	123	55.28 %
Other Male Genital	63	125	50.40 %

Uncover trends over years, and identify underserved counties / disease sites

*County totals may not equal state totals because the patient volume may be suppressed by the Center for Health Data and Informatics, Utah Department of Health because the observed number of events is very small and not appropriate for publication .

†Refers to Analytic Cancer Cases for Utah residents only

**Classification of unknown/ill-defined sites may not correlate with NCI site classification

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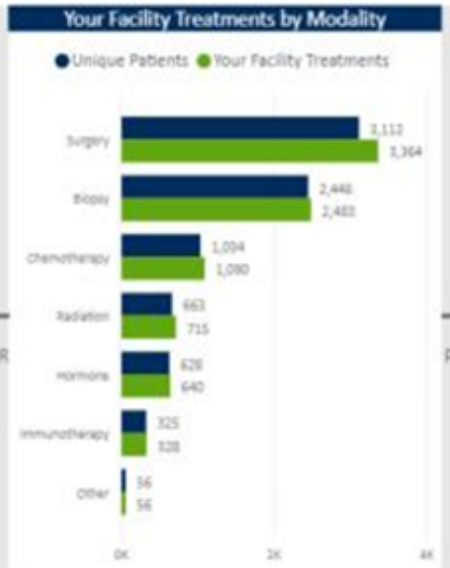
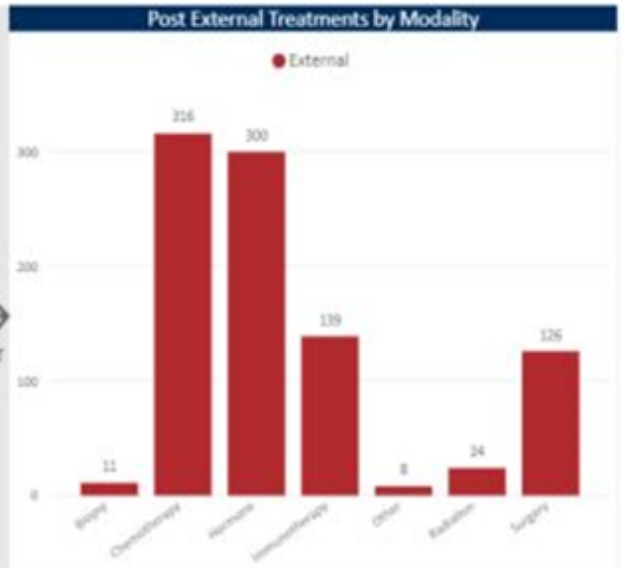
MIGRATION REPORTS - COST





PRIOR

POST

Prior External Volumes by Facility

External-System-Home Hospital Name	External Patients	External Treatments
STAFF PHYSICIAN	363	423
UNKNOWN	148	240
Physician's Office/Clinic, NOS	191	229
Revere Health	133	193
NON-STAFF PHYSICIAN	119	130
University of Utah - Huntsman	87	130
Ogden Regional Medical Center	33	35
Davis Hospital and Medical Center	18	20
Total	**1,136**	**1,600**

PRIOR

Your Facility Volumes

External-System-Home Hospital Name	Your Facility Patients	Your Facility Treatments
Intermountain Medical Center	1,734	2,557
Dixie Regional Medical Center	911	1,585
McKay-Dee Hospital	642	1,055
LDS Hospital	609	787
Utah Valley Hospital	592	721
Primary Children's Medical Center	260	514
Total	**5,762**	**8,676**

POST

Post External Volumes by Facility

External-System-Home Hospital Name	External Patients	External Treatments
Revere Health	220	309
University of Utah - Huntsman	149	236
STAFF PHYSICIAN	175	194
Physician's Office/Clinic, NOS	43	52
UNKNOWN	35	39
NON-STAFF PHYSICIAN	29	35
St. Mark's Hospital	11	11
Ogden Regional Medical Center	7	7
Total	**689**	**924**

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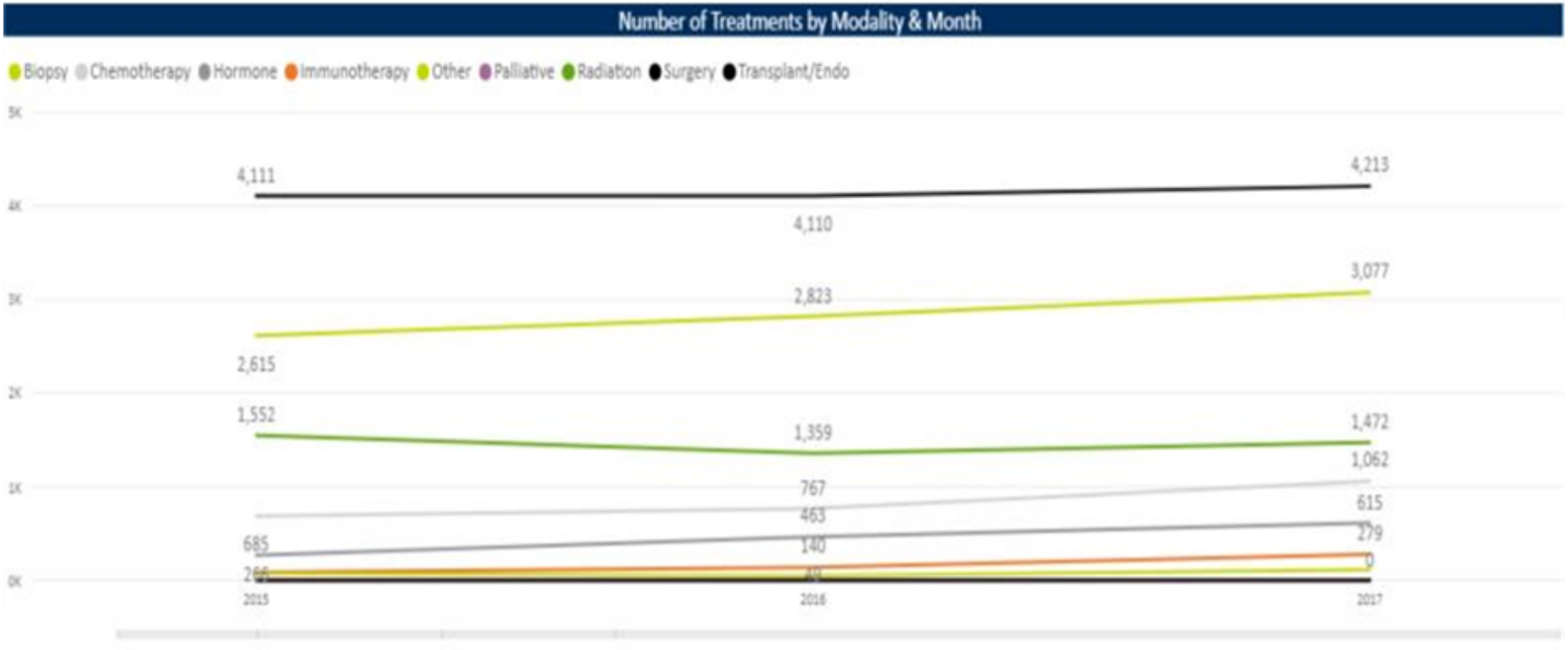
MIGRATION REPORTS - COST

3-Year Modality Treatment Trend



Compare services by month, year, disease site and facility (home, system, or external)

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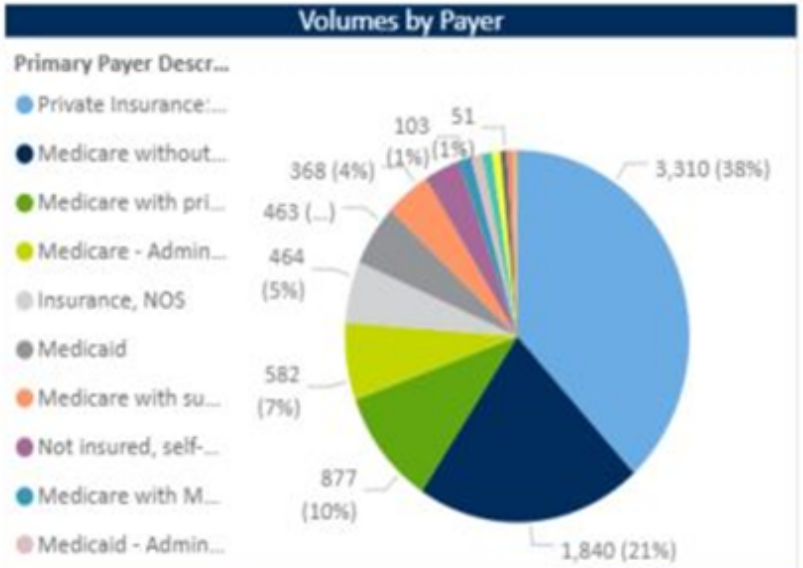
PAYER MIX - COST

Use payer mix to cross-reference treatments and facilities with insurance type by stage and age to better understand existing and potential income stream.



Top 10 Your Facility Treatments by Site and Payer

Primary Payer Description	Bladder	Blood and Bone Marrow	Breast	Colon	Lung	Lymphoma	Prostate Gland	Rectum	Skin	Thyroid Gland
Private Insurance: Managed Care, HMO, or PPO	100	133	1,187	157	83	91	131	100	88	208
Medicare without supplement, Medicare, NOS	100	72	668	115	100	71	122	36	55	35
Medicare with private supplement	103	33	284	71	68	31	64	5	33	18
Medicare - Administered through a Managed Care plan	31	28	190	42	40	27	49	8	21	10
Insurance, NOS	5	16	189	25	9	25	12	6	3	43
Medicare with supplement, NOS	47	15	111	15	28	7	32	5	12	9
Medicaid	6	9	135	30	14	6	3	10	15	15
Not insured, self-pay	5	9	85	17	10	9	13	17	5	16
Total	412	338	2,992	501	380	284	452	201	247	377

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IMPACT ON QUALITY

Common System Problems:	CHAMPS Solutions:
Questionable data quality	100% cancer case reviews
Unknown accuracy rate	Abstracting accuracy rate average over 90%
Inconsistent regulatory data submissions	Error-free NCDB submissions & assisting with NCI & SEER (Utah State Registry) awards
No internal data quality review	Dedicated data quality & education team

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DISEASE SITE REPORT - QUALITY

Unique Patient Primary Site Volumes

External-System-Home Primary Site	External		Network		Intermountain	
	Unique Patients	Patient %	Unique Patients	Patient %	Unique Patients	Patient %
Breast	495	27.23 %	949	36.17 %	1,516	27.86 %
Total	**495**	**27.23 %**	**949**	**36.17 %**	**1,516**	**27.86 %**

Treatment Primary Site Volumes

External-System-Home Primary Site	External		Network		Intermountain	
	Treatments	Treatment %	Treatments	Treatment %	Treatments	Treatment %
Breast	755	31.39 %	1,456	37.39 %	2,544	31.93 %
Total	**755**	**31.39 %**	**1,456**	**37.39 %**	**2,544**	**31.93 %**

Using disease site report to validate volumes and create targets for growth

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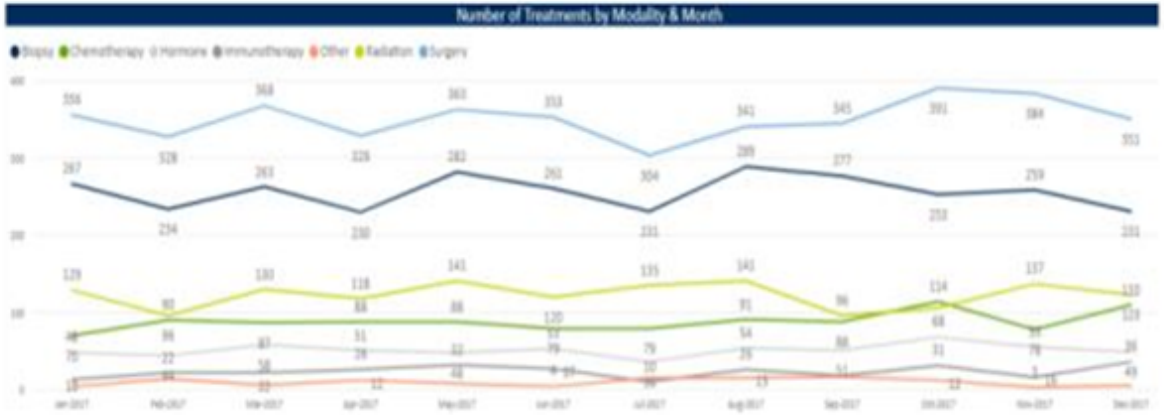
MODALITY DASHBOARDS - QUALITY

Use modality dashboards to zero on specific patient volumes by treatment, stage, age, and location; identify gaps in consistency across the system, variation in treatment volumes, and areas for improvement.

Patient and Treatment Modality Volumes

Modality Current	Unique Patients	Patient Percentage	Your Facility Treatments	Treatment Percentage
Surgery	3,899	54.98 %	4,213	38.89 %
Biopsy	2,978	41.99 %	3,077	28.40 %
Radiation	1,399	19.73 %	1,472	13.59 %
Chemotherapy	1,015	14.31 %	1,062	9.80 %
Hormone	612	8.63 %	615	5.68 %
Immunotherapy	273	3.85 %	279	2.58 %
Other	109	1.54 %	115	1.06 %



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IMPACT ON OUTCOMES

Common System Problems:	CHAMPS Solutions:
Failed survey or non-compliance with CoC standards	Proactive CoC consulting to avoid deficiencies
Inaccurate or unusable data for publications	Improve physicians, administrators, c-suite, board, and community confidence in registry data.
Registry operations not yielding an ROI	Utilize registry data to secure grants & publications, increase press coverage, and secure speaking engagements
Not able to measure success	Measurement vehicle: $i_2o^{®}$

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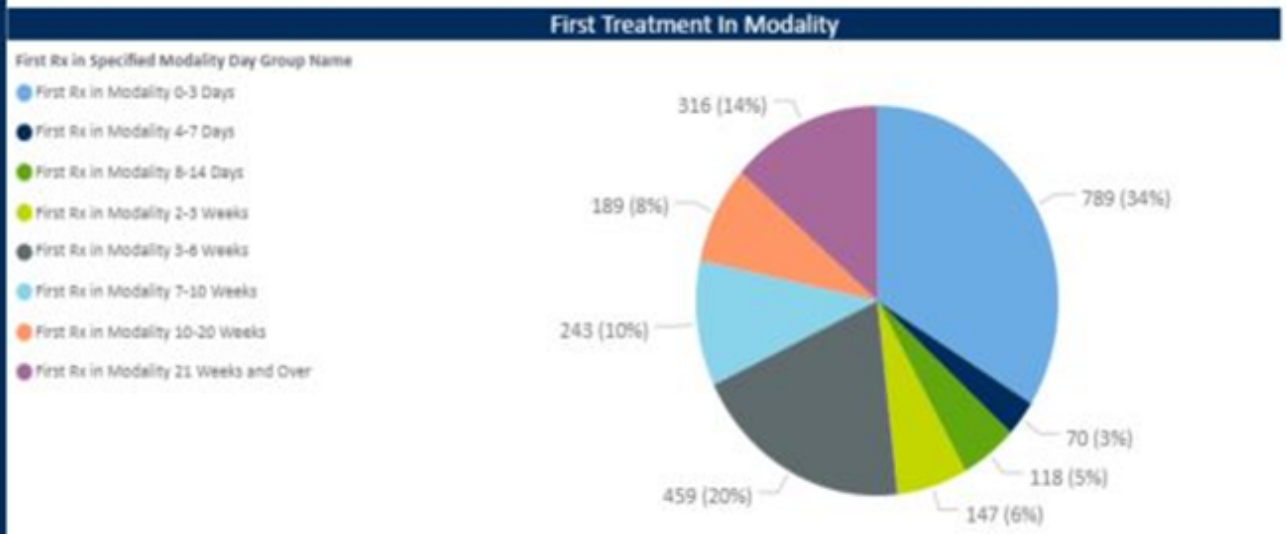
TIME-TO-TREATMENT - OUTCOME

BENCHMARK
PATIENT SERVICES

CREATE
GOALS FOR
TREATMENT

IDENTIFY
STAFFING NEEDS



Surgery	122	890	1,012
0-3 Days		47	**47**
4-7 Days		5	**5**
8-14 Days	3	78	**81**
2-3 Weeks	6	125	**131**
3-6 Weeks	40	385	**425**
7-10 Weeks	34	111	**145**
10-20 Weeks	20	30	**50**
21 Weeks and Over	19	109	**128**

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Quality Improvement Projects Utilizing Cancer Registry Data

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Ultimately the goal is to improve
the quality of care
by developing quality
improvement strategies
that proactively and consistently
support clinical best practice.
Intermountain
Healthcare

DATA DRIVEN PAPERS - OUTCOME

STUDY: Variation in Prostate Cancer Treatment Across the State of Utah—Impact of Population Density on Primary Treatment Modality

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PURPOSE: Uncover variation in primary treatment of PCa in the state of Utah, from 2006 to 2015

MATERIALS: Utah Cancer Registry data, treatment modality information (i_2o), and population density information

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RESULTS: Variations in treatment were discovered...

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QUALITY IMPROVEMENT AND RESEARCH

TUMOR-SPECIFIC PROJECTS

Breast Cancer

- ER/PR Specimen Handling
- Breast Reconstruction
- Oncotype DX Testing
- MRI Utilization in Breast Cancer Patients
- Short-Term Imaging Follow-Up
- Sentinel Lymph Node
- Tissue Procurement
- Time to Biopsy
- Mammography Callback Rate
- Early Stage Adjuvant Radiation Therapy
- Node Dissection Rate for DCIS
- DCIS at Diagnosis
- Axillary Dissection Following Positive Sentinel Node Biopsy
- Early Stage at Diagnosis
- Neoadjuvant Chemotherapy
- ER/PR Hormone Therapy
- Micrometastasis
- Hypo-fractionation
- Breast Screening Cost
- BIRADS 3

Colorectal Cancer

- Stage III Chemotherapy
- Rectal Cancer – Endoscopic Ultrasound
- Colon Familial Polyp (HICCP-UPDB)
- Metastatic Colon Cancer Tissue
- Colon 12 Node Retrieval
- HPNCC Genetics Study
- Pancreaticoduodenectomy Study

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QUALITY IMPROVEMENT AND RESEARCH

TUMOR-SPECIFIC PROJECTS

Melanoma

- Melanoma Database
- Ear Melanoma Study

Lung Cancer

- Pre-Operative Imaging

GYN Cancers

- Endometrial Cancer Study
- Ovarian Cancer Study
- Endometrial Familiality Study
- PAP & HPV Testing
- Endometrial Lynch Syndrome
- Stage III Radiation
- Myometrial Invasion

Urologic Cancers

- Prostate Quality of Life Study
- Radiation Treatment Templates
- Renal Cancer Database
- Finasteride
- Familial Polyp
- Prostatectomy Length of Stay (LOS)
- Prostatectomy Variable Cost Evaluation
- Physician Report Card
- PSA Recurrence
- Prostatectomy Margin Status

Other

- Multi-clinic Downstream Revenue
- Neuro-Oncology Database

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FOR MORE INFORMATION

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