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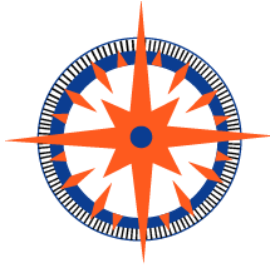
(PROBAND-HN)

**A Prospective Multicenter Cohort
Study of Patients with Newly
Diagnosed Head and Neck
Cancer**

RTOG[®]
RADIATION THERAPY
ONCOLOGY GROUP

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Prospective Longitudinal Observational Cohort Study
for Newly Diagnosed Head and Neck Cancer



LORHAN Origin

ImClone Systems Launches First-of-Its-Kind Registry for Head and Neck Cancer Patients at ASTRO Annual Meeting; "LORHAN" Registry to Enrich Treatment Practice by Providing Insight into National Treatment Trends and Outcomes

October 17, 2005 07:00 AM Eastern Daylight Time

DENVER--(BUSINESS WIRE)--Oct. 17, 2005--ImClone Systems Incorporated (NASDAQ: IMCL) today announced the launch of a first-of-its-kind, independent national registry of patients with head and neck cancer known as LORHAN (Longitudinal Oncology Registry of Head And Neck carcinoma) at the 2005 American Society of Therapeutic Radiology and Oncology (ASTRO) Annual Meeting in Denver.

- ImClone conceived of LORHAN as a means to establish itself as a leader in head and neck cancer
- Registry seen as a vehicle for engaging thought leaders and community physicians
- Opportunity to understand trends in head and neck cancer and advance medical knowledge
- Led by Medical Affairs group



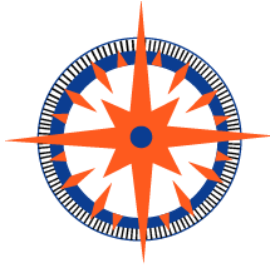


LORHAN vs. Other Registries

Selected Registry Features	LORHAN	SEER ¹	NCDB ²
Patient baseline characteristics	√	√	√
Detailed data on radiation	√		
Detailed data on cancer drugs	√		
Information on supportive care	√		
Outcomes by treatment	√		√
Prospective and longitudinal data	√	√	
Web-based data entry	√		
Real-time data access	√		

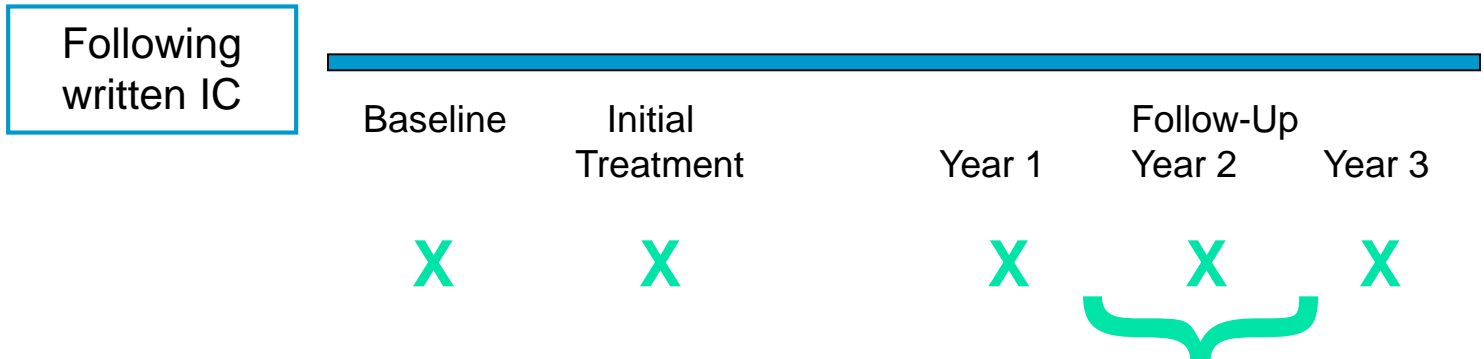
¹Surveillance, Epidemiology and End Results

²National Cancer Data Base

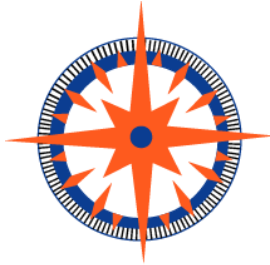


Study Design

- Prospective, longitudinal, multicenter observational
- Approximately 100 sites
- 10 years in duration
- Three data collection intervals:

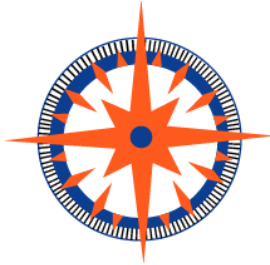


Re-treatment information was collected for patients with progressive/recurrent disease or new primaries



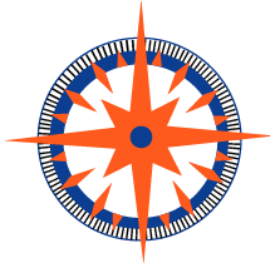
LORHAN Primary Objective

- Describe, in detail, patterns of care of HNC patients
- Hypotheses tested:
 - There is no difference in pattern of care between community and academic settings
 - Results of randomized practice-changing clinical trials will impact the pattern of care in community and academic settings within one year of publication in peer-reviewed journals



LORHAN Secondary Objectives

- Document the outcome (tumor control, survival) by treatment regimen
- Determine the incidence and severity of major dose-limiting and other important treatment toxicities
 - Mucositis/stomatitis, skin reactions, infusion reactions, allergic reactions/hypersensitivity (+neutropenia)
- Identify supportive care received for managing nutrition, pain, nausea and other complications
 - Feeding or tracheotomy tube use, opioid analgesic use, anti-emetic use and use of other selected supportive care agents



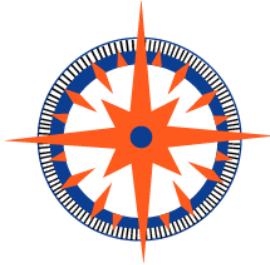
Patient Eligibility

- Inclusion Criteria:

- Pathologically (histologically or cytologically) confirmed new diagnosis of carcinoma involving the oral cavity, oropharynx, nasopharynx, hypopharynx, larynx, or neck node metastasis from unknown origin
- Scheduled to receive radiotherapy and/or drug therapy including chemotherapy, biologic therapy and targeted therapy
- Written informed consent
- ≥ 18 years of age

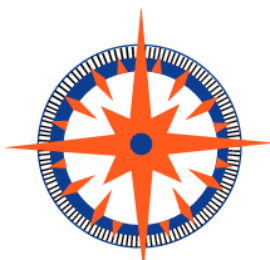
- Exclusion Criteria:

- Registry participation does not exclude participation in clinical trials. Patients scheduled to receive surgery are eligible as long as they are also scheduled to receive medical therapy as described above.

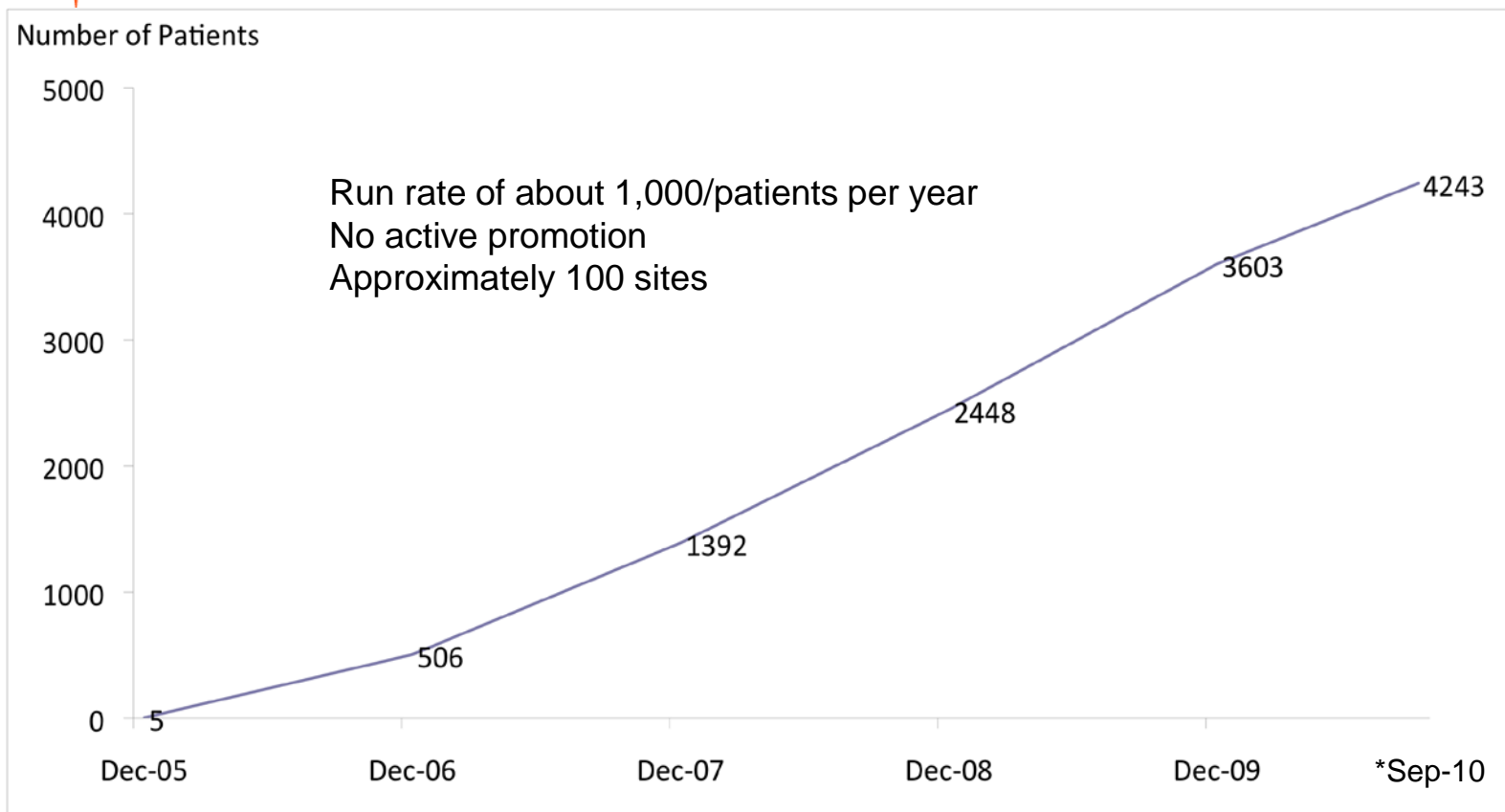


Data Entry

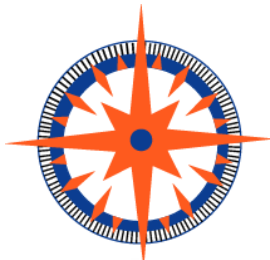
- Web-based CRFs (MedNet Solutions)
 - Most fields had check boxes or drop-down menus
- Data entry by physician or staff
- Encrypted point-to-point data transfer via Secure HTTP protocols



Cumulative Enrollment



*As of Sept. 30, 2010



Location of Sites

Midwest
(n=1033)





Northeast
(n=857)

West
(n=753)

South
(n=1600)

Distribution of New Cases

LORHAN SEER*

	38%	38%
	24%	23%
	20%	20%
	18%	20%

 Location of sites

Patients enrolled in LORHAN, n

*SEER State Cancer Profiles, Oral Cavity & Pharynx, Incidence Rates 2007

NOTE: SEER separates out oral cavity and pharynx cancers from larynx cancers in reporting of head and neck cancer. Oral cavity and pharynx cancers make up the vast majority of head and neck cancers.



Data Dissemination

Abstracts (n=12)	2006	2007	2008	2009	2010	2011
ASCO	X		X	X	X (n=2)	X
Triple Meeting		X				
AHNS	X					
ASTRO			X			X
MASCC			X		X	

Manuscripts (n=5)

Murphy BA, et al. Longitudinal oncology registry of head and neck carcinoma (LORHAN): initial supportive care findings. *Support Care Cancer*. 2009. 17:1393–1401

Wong SJ, et al. Longitudinal oncology registry of head and neck carcinoma (LORHAN): Analysis of chemoradiation treatment approaches in the United States. *Cancer*. 2011. 117: 1679–1686.

Ang KK, et al. Head and neck carcinoma in the United States. *Cancer*. 2012. 118: 5783–5792.

Hayes DN, et al. An exploratory subgroup analysis of race and gender in squamous cancer of the head and neck: inferior outcomes for African American males in the LORHAN database. *Oral Oncol*. 2014 Jun;50(6):605-10.





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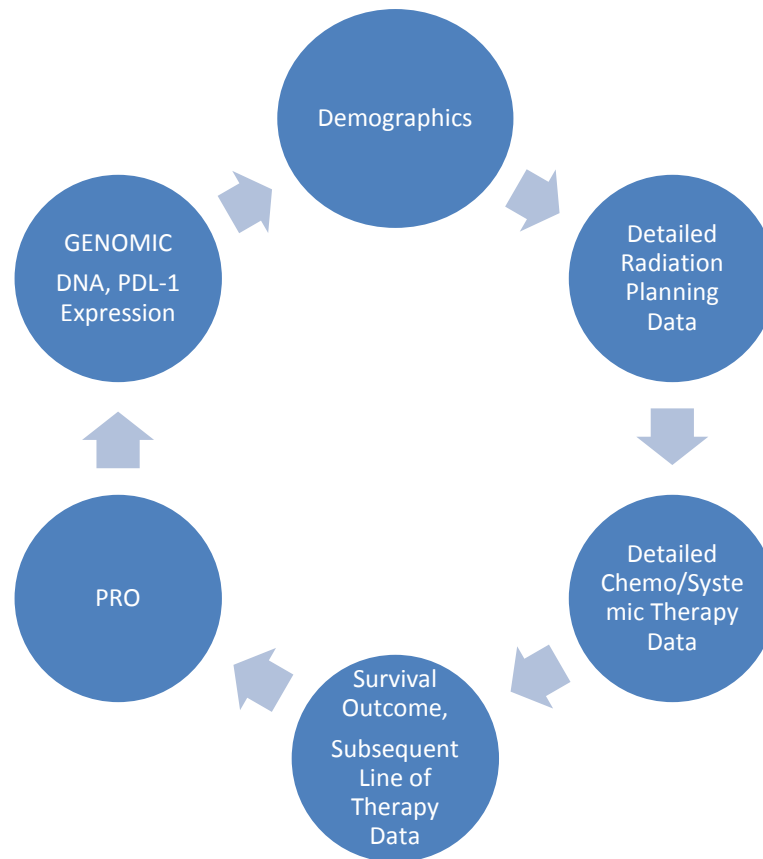
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**A Prospective Multicenter Cohort
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RTOG 3512

Building on the success of LORHAN



RTOG 3512 Steering Committee

- Composed of leading experts in head and neck cancer and representative(s) from the study Sponsor
 - Dr. Stuart Wong (Chair)
 - Dr. Neil Hayes
 - Dr. Amy Chen
 - Dr. Maura Gillison
 - Dr. Loren Mell
 - Dr. Mitchell Machtay
- Role: General study oversight
- Responsibilities: Lead the design, conduct, analysis and reporting of the study



CRO (MedNet Solutions)

- Role: Manage study conduct, analysis and reporting
- Responsibilities:
 - Create budget
 - Write protocol
 - Create eCRFs and manage technology (EDC)
 - Manage Steering Committee
 - Promote the study, in collaboration with Sponsor
 - Provide clinical data review through Steering Committee
 - Issue site queries
 - Analyze data
 - Create data sharing agreement
 - Draft abstracts and manuscripts, if desired