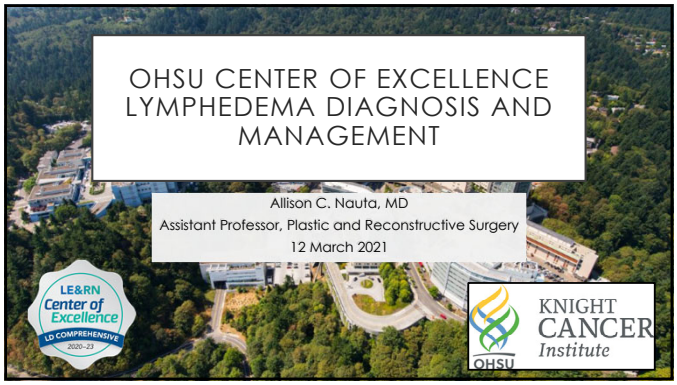


DISCLOSURES

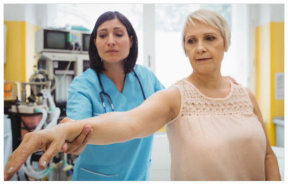
- Nothing to disclose.

WHAT IS A CENTER OF EXCELLENCE IN LYMPHATIC DISEASE?

Lymphatic Education & Research Network
Centers of Excellence
LD Comprehensive Center of Excellence
LE&RN Center of Excellence
LD COMPREHENSIVE
2020–23

Lymphatic Education & Research Network

Centers of Excellence



Diagnosis and Treatment of Lymphatic Diseases

Lymphatic Education & Research Network

Centers of Excellence

Letter of Intent to Apply for LE&RN *Center of Excellence* Designation

Name of Institution/Clinic: Oregon Health and Science University (OHSU) and Doernbecher Childrens Hospital

Location (City, State, Country): Portland, Oregon, USA

Physical Address: OHSU 3181 SW Sam Jackson Park Road Portland, OR 97239-3098

Mailing Address: (as above)

Name/Title of Center/Clinic Director: OHSU Center for Lymphatic Disease

Email Address: nauta@ohsu.edu Phone #: 503 494 6687

Category of Center of Excellence (COE) Designation (Please see attached Table 1/Checklist for category requirements and descriptions):

- [x] Comprehensive Center of Excellence
- [x] Network of Excellence
- [x] Referral Network of Excellence
- [x] LD Surgery Center of Excellence
- [x] LD Conservative Care Center of Excellence

OHSU

Department of Surgery

Division of Plastic and Reconstructive Surgery

3303 SW Bond Avenue
Mail Code CHSP
Portland, Oregon 97239
Tel: 503-494-6687
Fax: 503-494-1717
www.ohsu.edu/surgery

Juliana E. Hansen, M.D.
Professor
Division Chief
Program Director, Plastic Surgery Residency

Jens U. Berli, M.D.
Assistant Professor
Assistant Program Director, Plastic Surgery Residency
Program Director, Gender Surgery Fellowship

Shiliang Chang, M.D.
Assistant Professor

Judah S. Garfinkle, D.M.D., M.S. *Associate Professor of Plastic Surgery and Orthodontics Director of Craniofacial Orthodontics*

Angelo B. Lipira, M.D., M.A.
Assistant Professor

Reid V. Mueller, M.D.
Associate Professor

Allison C. Nauta, M.D.
Assistant Professor

Kindra Scanlon, NP, APRN
Nurse Practitioner

Joel S. Solomon, M.D., Ph.D.
Associate Professor
Program Director, Hand Fellowship

Leo J. Urbinelli, M.D., M.A.
Assistant Professor
Associate Medical Director, Craniofacial Disorders Clinic

Alix Wherley, PA-C
Physician Assistant

June 14, 2019

Dear LE&RN Center Programs & Education Advisory Committee:

I submit this letter of intent on behalf of OHSU and Doernbecher Children's Hospital in Portland, Oregon to apply for Center of Excellence designation in the Diagnosis and Treatment of Lymphatic Diseases. OHSU's mission and interest is to become a leader not only in diagnosis and treatment of lymphedema, but also in its prevention in the state of Oregon and the region.

OHSU has a multifaceted public mission. The enterprise strives for excellence in education, research and scholarship, clinical practice, and outreach. Through its dynamic interdisciplinary environment, the hospital stimulates the spirit of inquiry, initiative, and cooperation among students, faculty, and staff. As Oregon's major academic medical center and one of the City of Portland's largest employers, OHSU is a 428 bed acute care adult facility connected by a sky bridge to the 145 bed acute care Doernbecher Children's Hospital and the affiliated Veterans Administration Medical Center.

In fiscal year 2018, our occupancy was 83%, with an average length of stay of 5.9 days. There were 29,230 discharges (not including newborns), 48,461 emergency room visits, 955,857 practice visits, and 35,560 operations.

OHSU is fully accredited by DNV, having completed its 2nd full hospital survey this past December. Among its list of accreditations and certifications, OHSU carries American College of Surgeons Level I Trauma Center and Bariatric Surgery designations. The hospital is one of five hospitals across the United States to be verified as both a Level I Pediatric Trauma Center, as well as a Level I site for Children's Surgery by the American College of Surgeons. We hold DNV Certification for Heart Failure and Comprehensive stroke as well as DNV Credentialing for VAD. OHSU was also granted Magnet recognition by the American Nurses Credentialing Center for Nursing Excellence for a second time in November 2017.

In addition, OHSU has recently acquired two integrated hospital partners, Tuality Health Care in Hillsboro and Adventist Health Portland. OHSU provides a robust telemedicine program offering several aspects of ambulatory, transitional, and acute care. OHSU participates in national and state initiatives and trusted data sources, including the National Database of Nursing Quality Indicators, CDC National Healthcare Safety Network, National Surgical Quality Improvement Programs, Society of Thoracic Surgeons Cardiac Surgery Databases, National Cardiovascular Data Registry, Vermont Oxford Network, and Get With the Guidelines.

Lymphatic Education & Research Network 261 Madison Avenue, 9th Floor | New York, NY 10016

May 28, 2020

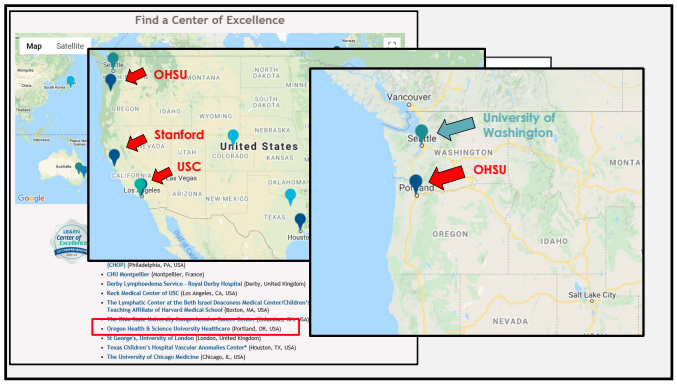
Oregon Health and Science University
and Doernbecher Children's Hospital
Attn: Allison Nauta
3181 SW Sam Jackson Park Rd.
Portland, OR 97239

Dear Allison,

Congratulations, you are making history. It is with great pleasure that we announce the Global Oversight Committee has reviewed your application, and after careful consideration, has agreed that your institution meets all the requirements for a LE&RN Comprehensive Center of Excellence (COE) in lymphatic disease (LD). Thank you for your dedication to providing the highest quality care to those living with lymphatic diseases.

LE&RN Centers of Excellence LD

COMPREHENSIVE CENTER OF EXCELLENCE (COE) designation indicates that an institution can provide the listed services on-site, all within the same institution, and can coordinate provision of the services.



NATIONAL CANCER INSTITUTE

"one of the most poorly understood, relatively underestimated, and least researched complications of cancer and its treatment."

CLINICAL BURDEN

- >10 million Americans
- 1/3 breast cancer survivors
- WHO: 250 million worldwide

- #1 cancer survivor disease
- No cure
- No approved drug therapy
- Only 3 studies worldwide seeking new treatments

AMERICAN HORROR STORY

MISERY

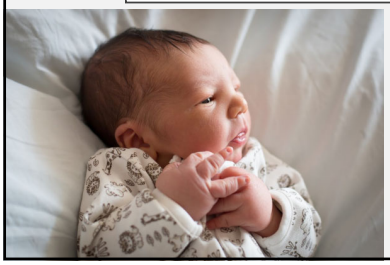
KATHY BATES, SPOKESPERSON FOR LE&RN
APRIL 9, 2019

PATHOPHYSIOLOGY

LYMPHEDEMA

- Primary
- Secondary

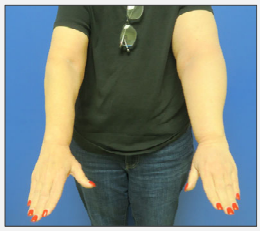
PRIMARY LYMPHEDEMA



- Failure of formation
- Failure of overlap of endothelial cells (no valves)
- Failure of calcium dynamics, ability to sense nitric oxide
- 1.15/100,000 less than 20 years old

SECONDARY LYMPHEDEMA

- 99% of lymphedema
- 1/1000 individuals
- Filariasis in developing countries, breast cancer in the US

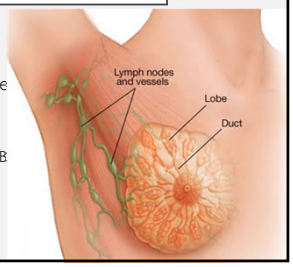


CANCER-RELATED LYMPHEDEMA

- Trauma to lymphatics
- Radiation
- Chemo (Taxol)
- Compression of lymphatics (bulk)
- Lymphatic infiltration by cancer

INCIDENCE OF BREAST CANCER RELATED LYMPHEDEMA (BCRL)

- Incidence 20-30% (5-50%)
- 1/5 patients with breast cancer
- Mean onset 14-18 months after surge
- Factors:
  - Axillary LN dissection (20-40% risk)
  - Increased number of LNs (2-7% in SLNB
  - Radiation
  - No reconstruction
  - Chemotherapy



"I BEAT CANCER, I CAN'T BEAT LYMPHEDEMA"

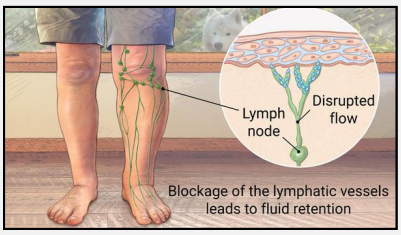
- Significantly more hospitalizations and nearly 7X higher average healthcare charge per patient compared with cancer patients without lymphedema
- 30% of patients experience infection, warranting hospital admission for IV antibiotics within 1 year
- Each episode can result in 4 day hospitalization and >$16,000
- Patients with BCRL averaged 3 all-cause hospitalizations each year over 2 year period versus 0.5 for all other breast cancer patients without lymphedema

LYMPHEDEMA IMPACT

- Pain, heaviness, fatigue
- Decreased quality of life
- Recurrent infection
- Disfigurement

LYMPHEDEMA

- Protein rich interstitial edema
- Inflammation
- Fibrosis/scarring
- Fat deposition
- Local immune disturbances



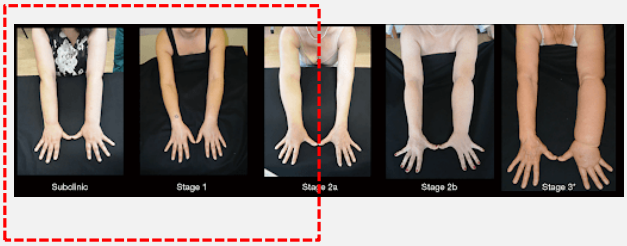
MISCONCEPTION

- Toxin buildup is the problem
  - Toxin buildup
  - Toxin flushing
  - Toxins poisoning the body

REALITY: A HOUSE WITHOUT ITS FOUNDATION

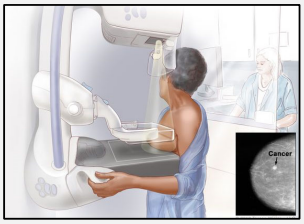
GENETIC PREDISPOSITION?

STAGES OF LYMPHEDEMA



SURVEILLANCE

BIOIMPEDENCE/L-DEX



SURVEILLANCE SCHEDULE

- Pre-operative baseline
- 3 months
- 6 months
- 12 months
- 18 months
- 24 months

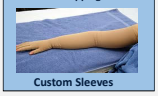
Sarah Gang, CLT-LANA (OT)

Amy Woods, CLT-LANA (PT)

CONSERVATIVE MANAGEMENT


Decongestive Physiotherapy


Wrapping

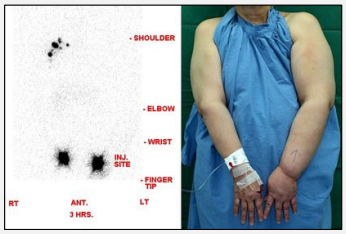

Custom Sleeves


Pneumatic Pumps

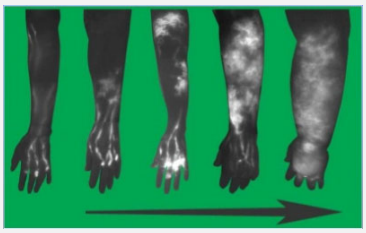
DIAGNOSIS

DIAGNOSIS

- Clinical Exam
- Imaging:
  - Lymphoscintigraphy
  - ICG lymphography (near-infrared fluorescence lymphography)
  - MR lymphography



ICG LYMPHOGRAPHY STAGING

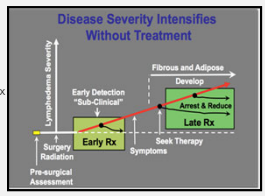


Yamamoto T. (2018) Near-Infrared Fluorescent Lymphography. In: Lee BB., Rockson S., Bergan J. (eds) Lymphedema. Springer, Cham

MEDICAL "CONSERVATIVE" MANAGEMENT

EARLY INTERVENTIONS

- Compression, compression, compression!*
- Stretching/yoga**
- Dietary/Weight loss***
  - Obesity at the time of surgery increases risk by 3-8x
  - Obesity after surgery increases risk by 2-3%



*Gergich et al.
**Box et al. Breast Cancer Res and Treat. 2002

OBESITY MANAGEMENT

Dr. Jon Purnell, MD
Obesity medicine
Endocrinology/Cardiology

Dr. Farrah Husain, MD, FCS, FASMCS
Bariatric Surgery

Dr. Robert Martindale,
Surgical Nutrition

SURVEILLANCE AND EARLY INTERVENTION

- Decrease infection risk
- Improve quality of life
- Decrease healthcare costs

CONSERVATIVE THERAPIES

Complete Decongestive Physiotherapy

Wrapping

Custom Sleeves

Pneumatic Pumps

*Exercise under compression, skin ca

SURGICAL THERAPY

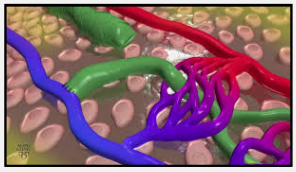
SURGICAL THERAPIES

Physiologic
- Lymphovenous bypass
- Vascularized lymph node transfer

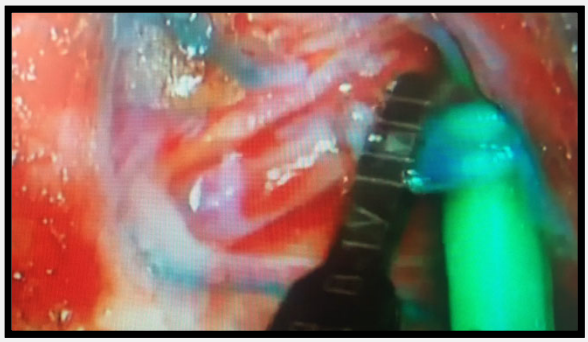
Ablative
- Liposuction
- Direct Excision

LYMPHOVENOUS ANASTOMOSIS

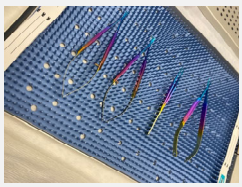
- Minimally invasive
- Preop ICG: map lymphatic system on skin
- Small incisions (3 cm) over functional lymphatic and vein
- Anastomosis created to divert lymph flow to venous system



O'Brien BM *et al.* 1977
Koshima I *et al.* 2000

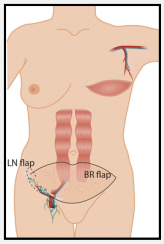


MITAKA MICROSCOPE
SUPERFINE MICROINSTRUMENTS

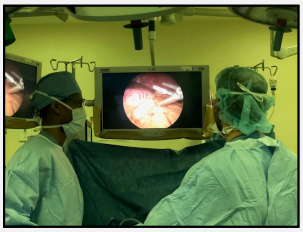


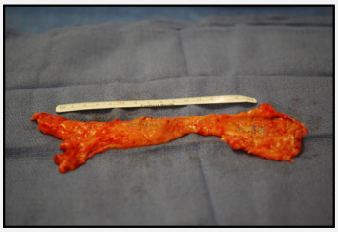
VASCULARIZED LYMPH NODE TRANSFER

- Free flap, microsurgical
- Used in fluid dominant phase (stages I-III)
- Scar release and introduction of non-irradiated, well-vascularized tissue bridging existing lymphatic channels
- VEGF-C production by healthy transplanted nodes→local lymphangiogenesis
- Improved local immunology, preventing infection of the involved limb
- Lymph nodes themselves act as a lymphatic-vascular interface
- VLNT as a "pump" for lymphatic fluid

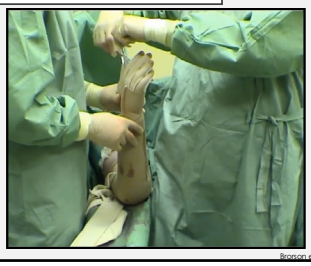


OMENTAL VASCULARIZED LYMPH NODE TRANSFER



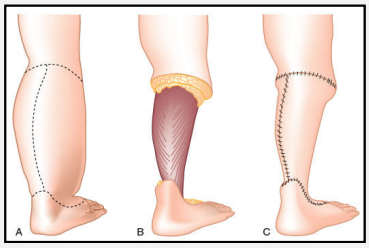


LIPOSUCTION



Brorson et al. 199

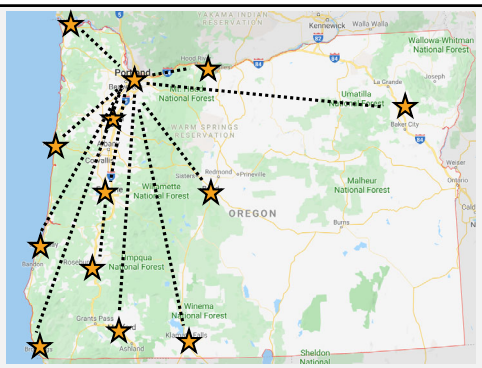
DIRECT EXCISION: CHARLES PROCEDURE

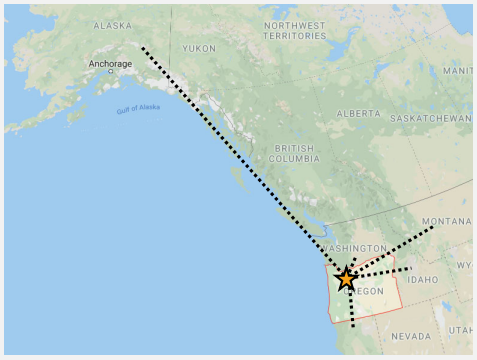


Charles et al. 1901

CHARLES PROCEDURE

Missing:
Dr. Arpana Naik, Dr. Sarah Crandall


Kennewick
Walla Walla
Wallowa-Whitman National Forest
Umatilla National Forest
Baker City
Malheur National Forest
OREGON
Burns
Willamette National Forest
Umpqua National Forest
Winema National Forest
Grants Pass
Ashland
Sheldon National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NORTHWEST TERRITORIES
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Anchorage
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ALBERTA
SASKATCHEWAN
BRITISH COLUMBIA
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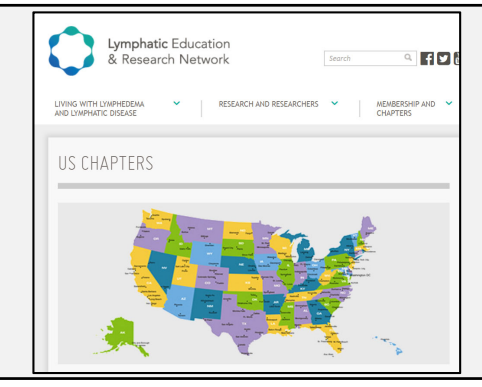
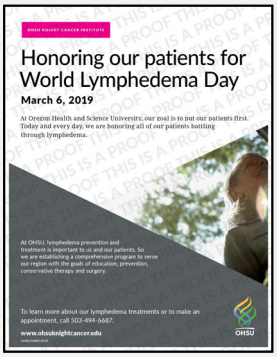
IDAHO
NEVADA


Lymphatic Education & Research Network
Search
LIVING WITH LYMPHEDEMA AND LYMPHATIC DISEASE
RESEARCH AND RESEARCHERS
MEMBERSHIP AND CHAPTERS
US CHAPTERS


LYMPHEDEMA


Honoring our patients for World Lymphedema Day
March 6, 2019
At Oregon Health and Science University, our goal is to put our patients first. Today and every day, we are honoring all of our patients battling through lymphedema.
At OHSU, lymphedema prevention and treatment is important to us and our patients. So we are establishing a comprehensive program to serve our region with the goal of education, prevention, conservative therapy and surgery.
To learn more about our lymphedema treatments or to make an appointment, call 503-494-6687.
www.ohsuknightcancer.edu
OHSU

2019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National Cancer Ins...
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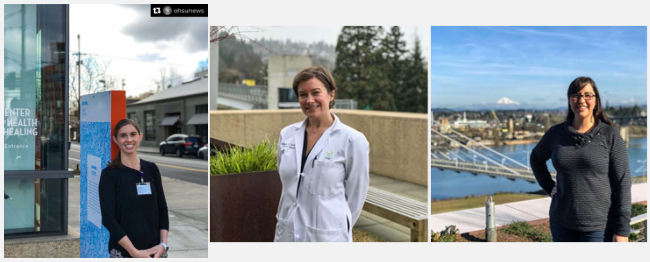
OHSU Doernbecher C...

2020

2020

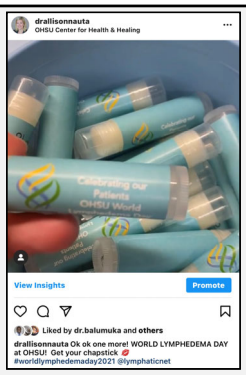


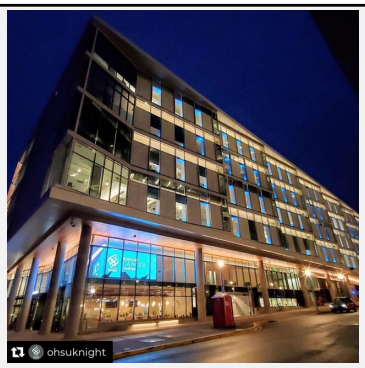
2021

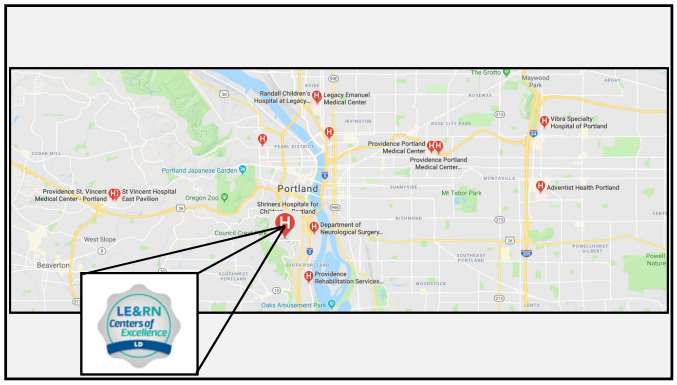
2021


ohsuplastics
Oregon Health & Science University (OHSU)
0:27
World Lymphedema Day
March 6, 2021
Liked by baltcho and others
ohsuplastics Happy World Lymphedema Day!
#ohsuplastics #plasticsurgery #plasticsurgeryresidency
#acaps #lymphedema #lymphedemaawareness... more
ohsuplastics
Oregon Health & Science University (OHSU)
Residents at OHSU learn lymphedema surgery and comprehensive lymphatic care throughout their six year program
Liked by baltcho and others
ohsuplastics Happy World Lymphedema Day!
#ohsuplastics #plasticsurgery #plasticsurgeryresidency
#acaps #lymphedema #lymphedemaawareness... more

2021


drallisonnauta
OHSU Center for Health & Healing
Celebrating our Patients OHSU World
View Insights
Promote
Liked by dr.balumuka and others
drallisonnauta Ok ok one more! WORLD LYMPHEDEMA DAY at OHSU! Get your chapstick
#worldlymphedemaday2021 @lymphaticnet


ohsuknight



THANK YOU

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