

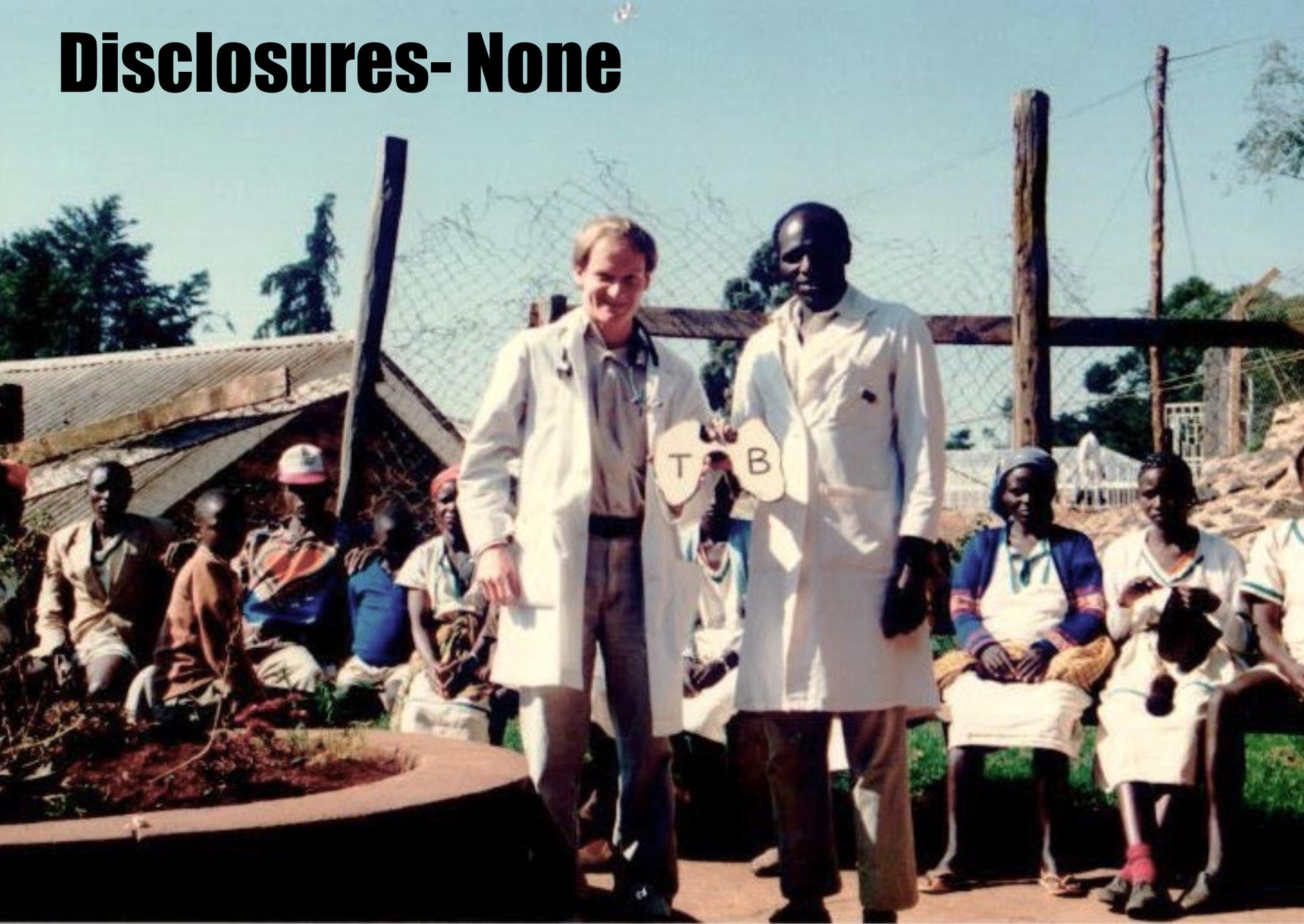
INTERNATIONAL STUDENT TB SCREENING IN A UNIVERSITY SETTING

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OSU Student Health Services

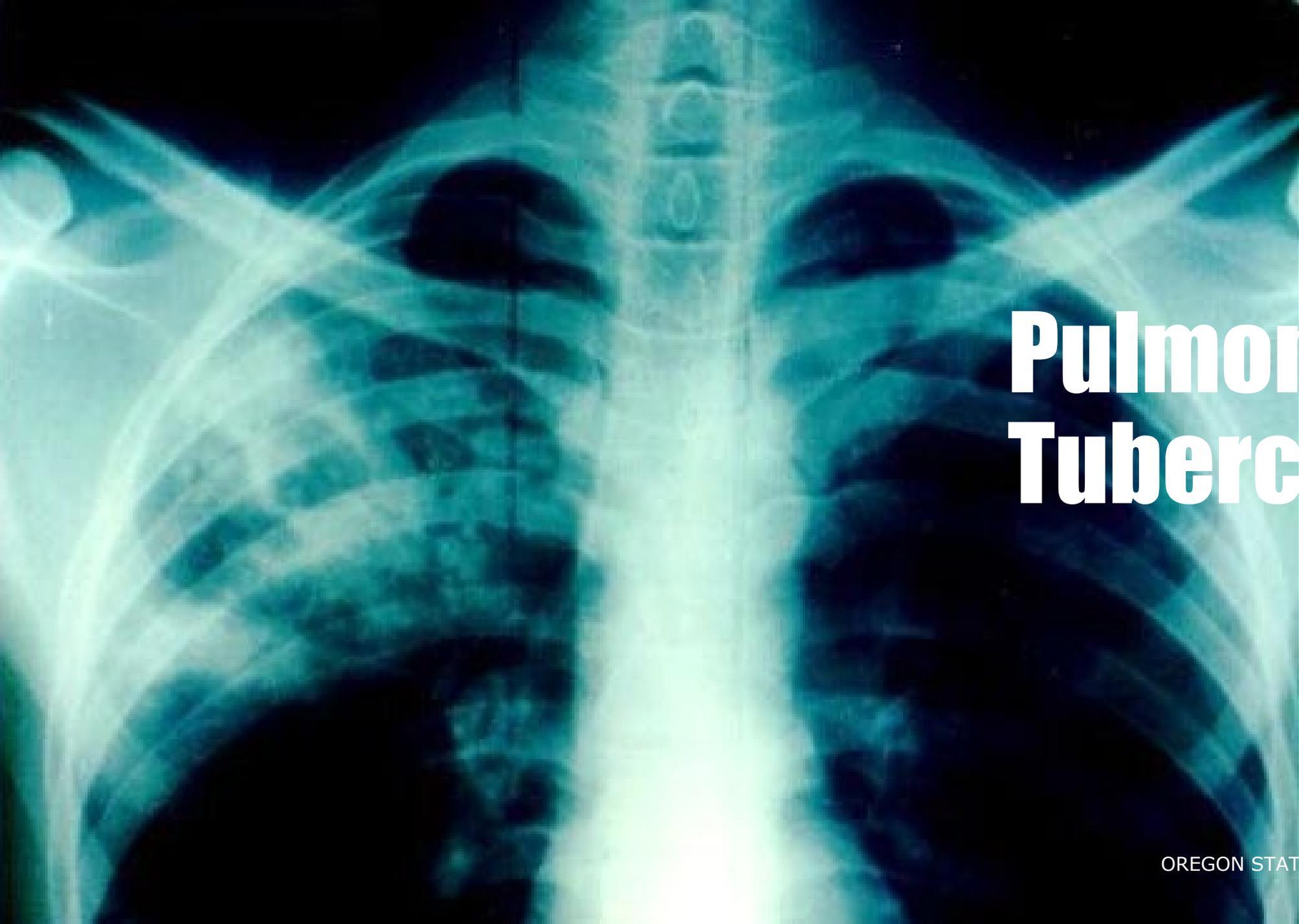


Oregon State
University

Disclosures- None



TB Ward
Tenwek
Hospital
Kenya
1988



Pulmonary Tuberculosis

Latent Tuberculosis Infection vs TB Disease

Latent TB Infection (LTBI)	Active TB Disease
TB germs are dormant & this phase can last for decades	TB germs are reproducing & spreading, causing tissue damage- pulmonary and extra-pulmonary
Feels well.	Sick and typical TB symptoms include: cough > 3 weeks, weight loss, night sweats or fever.
Chest x-ray is usually normal.	Chest x-ray and other tests are needed.
Not infectious	Infectious if pulmonary or laryngeal
Treat by taking 1-2 drugs	Treat by taking 3-4 drugs for at least 6 months
Costs about \$600 to treat	Costs about \$19,000 to treat

Oregon State University experience

- 35 years of international student TB screening
- 2012-2015: TB screening suspended
- 2010-2016: 60% of Benton County TB cases were OSU students
- 2016-2019:
 - ▶ ~ 30,000 (~ 24,000 - main campus) total enrollment
 - ▶ ~ 11.0 % (~ 3,400) international students
 - ▶ ~ 27.0 % (~ 930) international students/year test with IGRA (QFT-G)
 - ▶ ~ 4.7 % LTBI positivity rate

OSU TB Screening Team

- Brittney Holcomb, MA, Immunization/TB Compliance Manager
- Mark Hornabrook, MT (ASCP), SBB, MHA, Laboratory Director
 - ▶ Leslie Kaye, LMT2, Schedules Follow TB Screening Clinic/Appointments
- Charmaine Abrams, RT(R), X-ray Manager
- Patti Irvine, RN, Nursing Clinical Manager
 - ▶ Lynn Ward, RN, Nurse counselor & TB Screening Tracking Coordinator
- Jennifer Davis, PharmD, Director of OSU Pharmacy
 - ▶ Jackie Foster, PharmD, Clinical Pharmacist
 - ▶ Natasha Malik, PharmD, Pharmacy resident
- James Koski, MD, MPH, OSU TB Physician

Identifying Who Needs Screening

- Students from [higher TB endemic countries](#) with WHO TB incidence rate of greater to or equal to 20 cases/100,000.
- Immunization/TB Compliance Manager
 - ▶ Runs a BANNER report with country of origin to identify who need screening.
 - ▶ Informs students that they must report to International Immunization/TB Screening Clinic.

TB screening clinics

- Immunization/TB screening clinic: new student orientation
 - ▶ Immunizations
 - Required: MMR, HepB, Varicella, MCV4, Tdap
 - ▶ TB screening
 - TB screening questionnaire
 - Screening IGRA blood test (QFT-G) if from country of high incidence (20 cases/100,000)
- Follow-up TB screening clinic
 - ▶ 1V chest x-ray and initial LTBI counseling
 - ▶ Referrals: pharmacy >> LTBI treatment or TB physician >> secondary counseling

Non-compliance with screening and counseling = REGISTRATION HOLD

- SHS monitors student compliance with health policies.
- Failure to provide [completed health history form, proof of required immunizations](#) or [completed TB testing \(if required\)](#) before pre-registration period for next term's classes: SHS enters code in Student Information System preventing registration.
- Students can monitor holds via **Student Online Services > Student Records > View Holds** and can call Immunization Helpline (541-737-7573) or come to SHS to find out why they have a hold and how to have it removed.

Utilizing a Tracking Coordinator

- Tracks IGRA + patients through:
 - ▶ TB Screening
 - ▶ LTBI counseling
 - ▶ LTBI treatment
- Tracking coordinator can be:
 - ▶ Nursing staff vs. laboratory staff vs. clinical pharmacist
- Track positive patients throughout screening, counseling and treatment.

Tuberculosis of the Knee



Financing the Screening Program

2019 Student Costs

- Mandatory student health fee per term: \$171.54
 - ▶ Funds student health staffing
- Mandatory health insurance per term: \$938.00
- TB screening tests- 20% insurance co-pay
 - ▶ IGRA Test: avg. student cost \$0.00- covered 100%
 - ▶ 1V Chest x-ray: avg. student cost \$23.60
- LTBI treatment costs: 20% insurance co-pay
 - ▶ 3 month Isoniazid/Priftin (Rifapentine) (3HP/DOT): avg. student cost \$60-70
 - ▶ 4 month Rifampin (4R): avg. student cost \$30-60
 - ▶ 9 month Isoniazid (9H): avg. student cost \$30



Tuberculosis of Spine: Pott's Disease

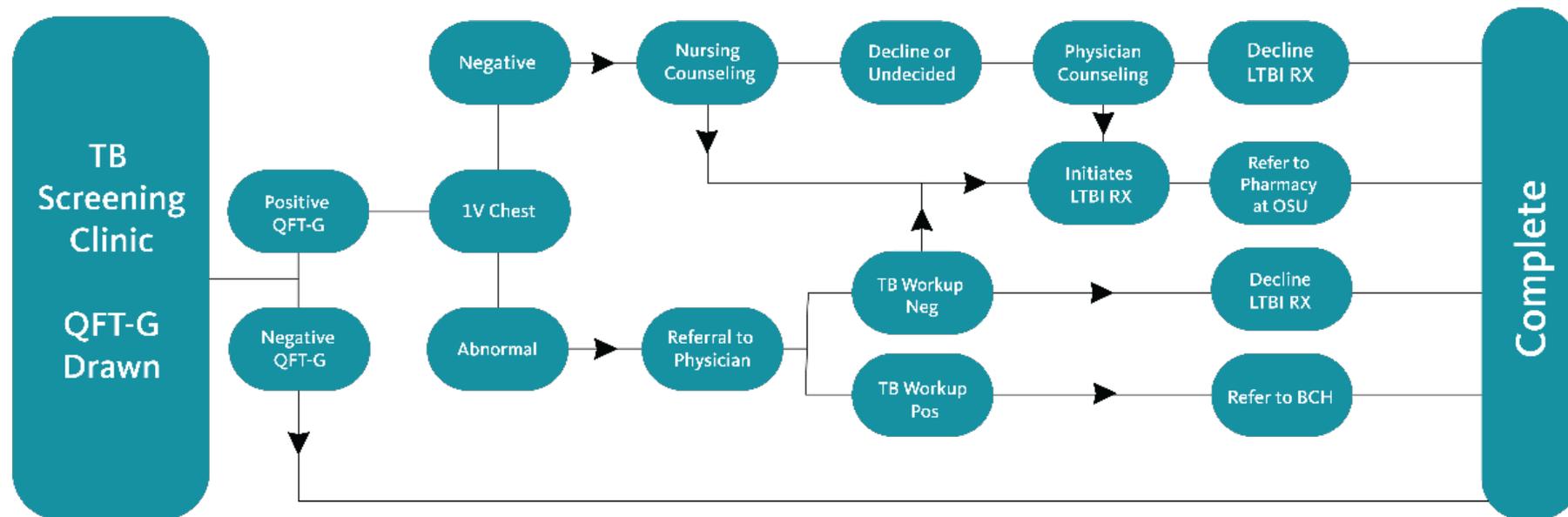
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Counseling Tools

- [CDC Stop TB poster](#)
- [CDC fact sheets: LTBI treatment](#)
- [Language-specific handouts and access to language line translators](#)
- [BCG World Atlas](#)
- [Online TST/IGRA Calculator](#)
 - ▶ Risk of Exposure & Risk of Progression
- OSU Mantra: “Decision to test is a decision to treat”

Importance of Repeated Counseling

International Student TB Screening at Oregon State University Student Health Services



Role of Pharmacy

- Counseling regarding [LTBI treatment options](#)
- Initiating and monitoring treatment
 - ▶ 3HP Directly Observed Therapy (DOT): weekly visits
 - ▶ 4R & 9H: monthly visits
- Collaborative care with TB physician
 - ▶ Communicate and consult with TB physician on regular basis
- Completion letters and documents
 - ▶ Provide [completion letter](#)
 - ▶ IGRA test result, chest x-ray report, & digital x-ray

Tuberculosis of Adrenal Glands



Comparison of LTBI treatment regimens

Regimen	3HP	4R	9H
Duration	3 month	4 months	9 months
Dosage	INH 15 mg/kg (900 max) RIF weight based dosing	10mg/kg (600 max.)	5mg/kg (300 max)
Number of Doses	12 weekly doses	120 daily doses	270 daily doses
Avg. Number of pills	9 pills	2 pills	1 pills + vitamin
Cost- Cash/Patient	\$377/\$60-70	\$199/\$30-60	\$149/\$30
Number of visits	12 weekly visits	4 monthly visits	9 monthly visits
Potential Side Effects	Rash, GI side effects, Hepatitis, , hematologic, Peripheral Neuropathy Colored Secretions	Rash, GI side effects, Hepatitis, Hematologic Colored secretions	Rash, GI Side Effects Hepatitis, Peripheral Neuropathy
Considerations	Avoid in pregnancy Drug interactions- OCP Avoid alcohol	Avoid in pregnancy Drug interactions- OCP Avoid alcohol	OK in pregnancy Avoid alcohol

OSU Initiation Rate (IR) for LTBI Treatment

	2015-2016	2016-2017	2017-2018	2018-2019
Initiation Rate (IR)	35.2 % (19/54)	71.1 % (27/38)	70.0 % (28/40)	65.8 % (25/38)
Decline Treatment	25.9 % (14/54)	21.0 % (8/38)	30.0 % (12/40)	34.2 % (13/38)
Undecided	0.0 % (0/0)	0.0 % (0/0)	0.0 % (0/0)	0.0 % (0/38)
Lost to Follow-Up	38.9 % (21/54)	7.9 % (3/38)	0.0 % (0/0)	0.0 % (0/0)

Patient preference for LTBI regimens

LTBI Regimen	2015-2016	2016-2017	2017-2018	2018-2019
3HP	68.4 % (13/19)	70.4 % (19/27)	59.3 % (16/27)	48.0 % (12/25)
9H	31.6 % (6/19)	29.6 % (8/27)	29.6 % (8/27)	8.0 % (2/25)
4R	Not offered	Not Offered	11.1 % (3/27)	44.0 % (11/25)

Completion rates (CR) for LTBI regimens

LTBI Regimen	2015-2016	2016-2017	2017-2018	2018-2019	Average Total
3HP	84.6 % (11/13)	94.7 % (18/19)	93.8 % (15/16)	91.7 % (11/12)	91.7 % (55/60)
9H	83.3 % (5/6)	75.0 % (6/8)	100.0 % (8/8)	50.0 % (1/2)	83.3 % (20/24)
4R	Not offered	Not offered	100.0 % (3/3)	100.0 % (11/11)	100.0 % (14/14)

In summary . . .

- Mandatory screening/counseling tied to registration status
- Require second LTBI counseling session if undecided or declined treatment
- Use The BCG World Atlas and The Online TST/IGRA Interpreter as counseling tools
- Offer shorter treatment regimens: 3HP and 4R
- Utilize TB screening coordinator to track students through the screening, counseling, and treatment process

