

OUR TEAM



Cornell Tech

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Zhihan

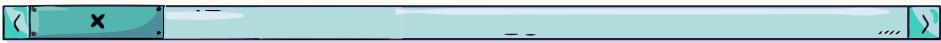
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01.

Area of Inquiry for the Theme

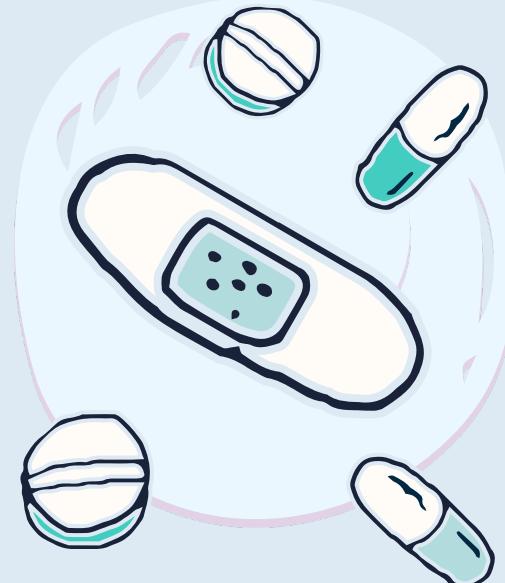




Our Challenge

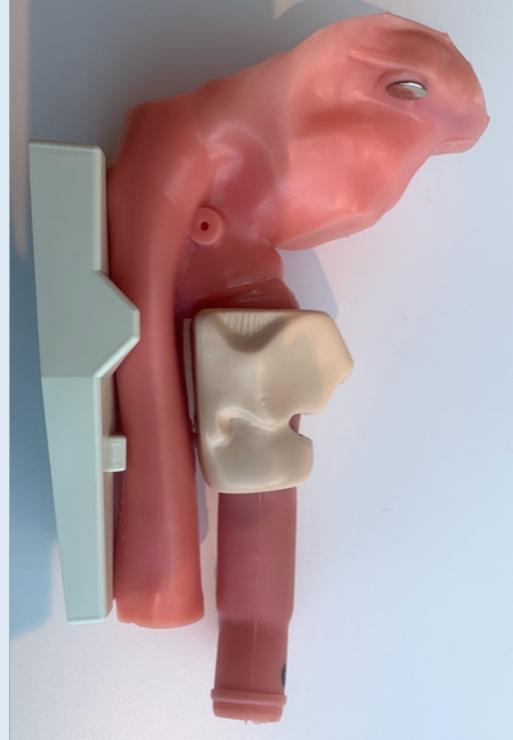
"One of the **major challenges** for [in low- and middle-income countries] is access to high-quality models to learn clinical procedures. These procedures can include learning how to intubate, performing cricothyrotomies, inserting chest tubes, etc.

... Use **low-cost, affordable, and easily sourceable materials**, to create simulation assemblies that can be used for residents and medical students to learn how to perform a procedural skill."



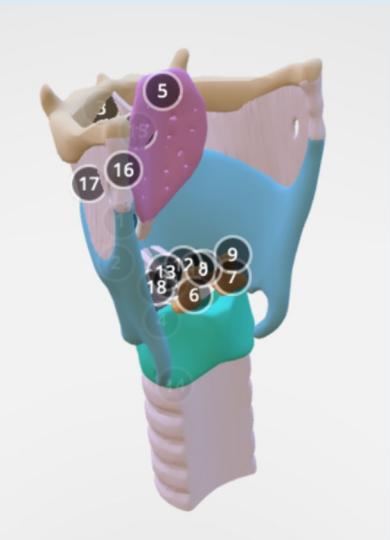


Current Training Models



Available 3D Models

Existing Larynx model online



Jaw print from last year's team

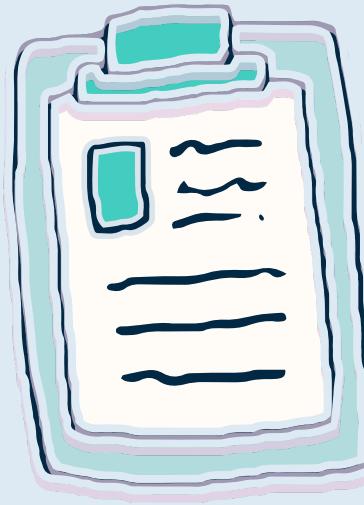


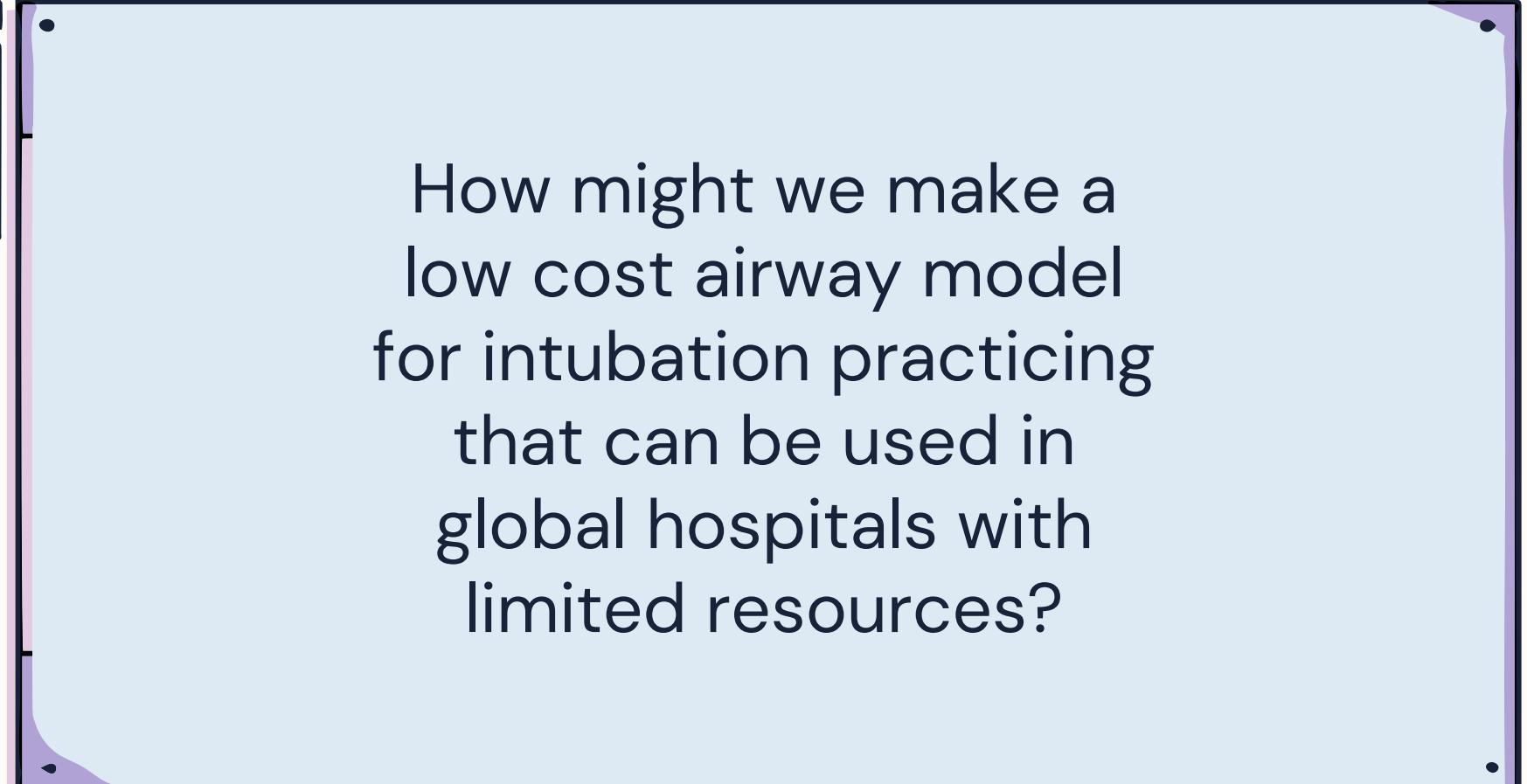


02.

Design Challenge

Framework



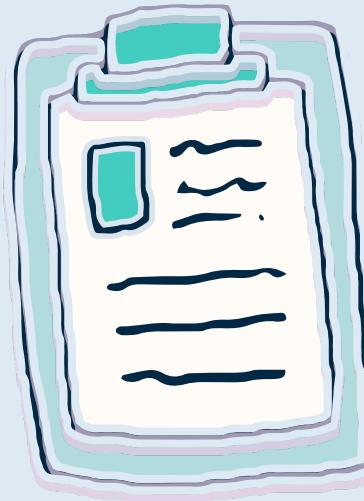


How might we make a
low cost airway model
for intubation practicing
that can be used in
global hospitals with
limited resources?



03.

User Groups & Need Defined





USERS



First Year E.R. Resident

First Year E.R. Resident / Intern
in didactic prepping for E.R.
Residency at NYC hospital with
limited resources



USER INTERVIEWS

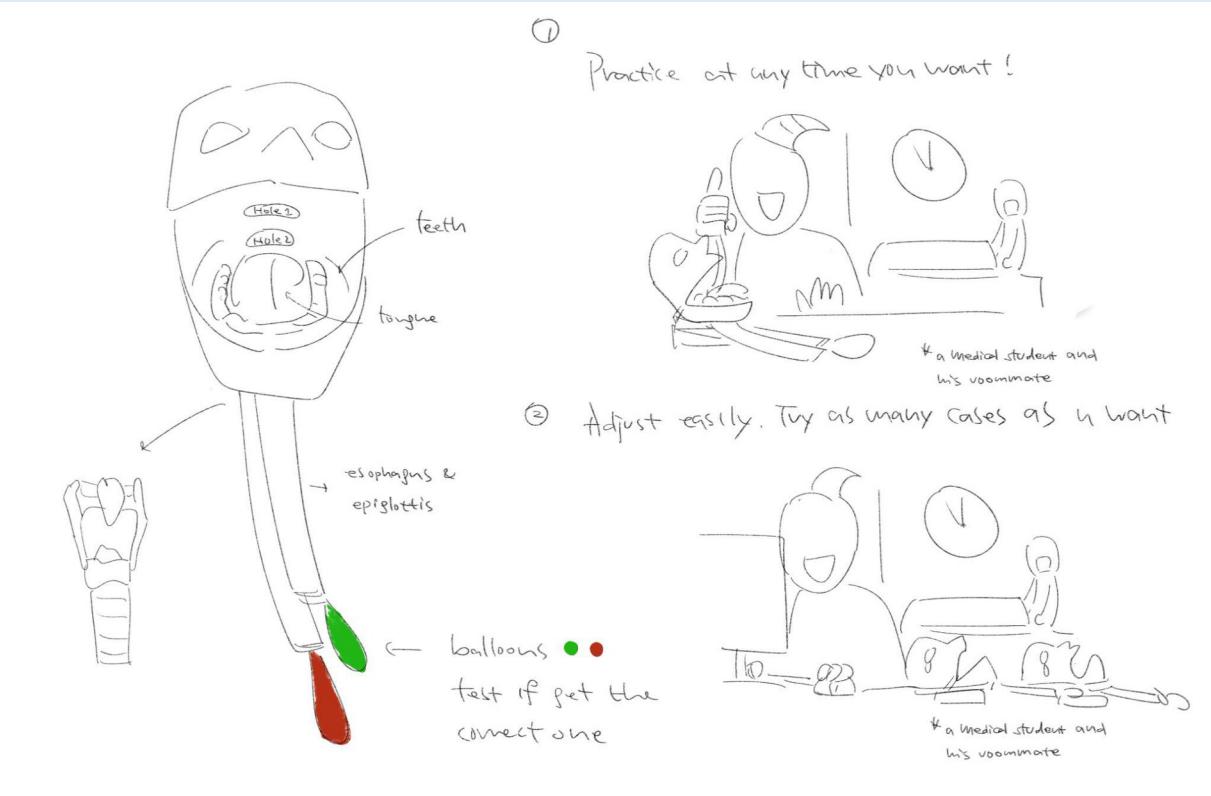
RESIDENT IN INDIA

"There is 1 sim model for 150+ students. Most of us get intubation experience directly with patients"

"Everyone's scared when they first intubate."

NURSE IN NYC



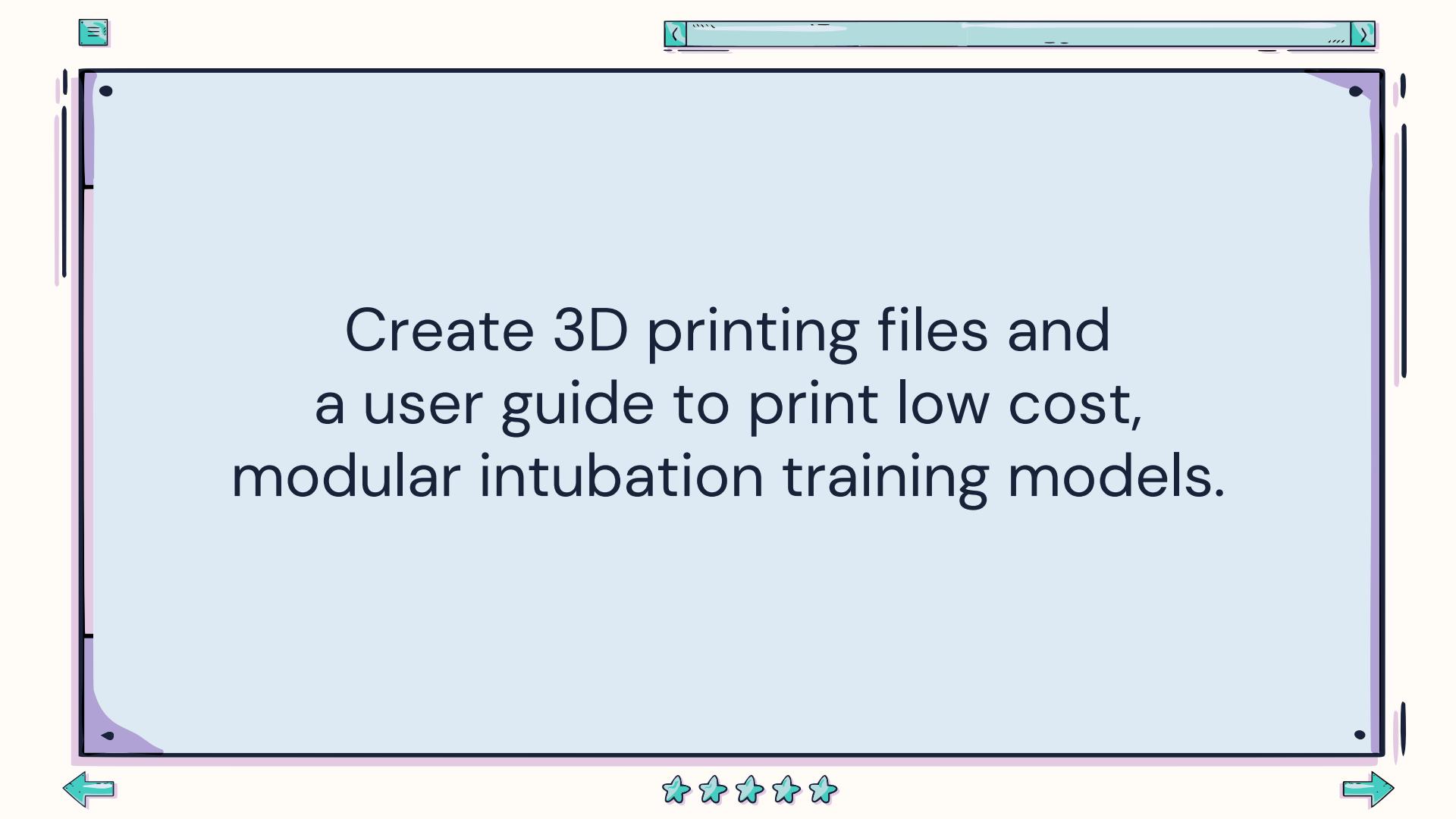




04.

Project Goals





Create 3D printing files and
a user guide to print low cost,
modular intubation training models.



PROJECT GOALS

DELIVERABLES

Assuming user has access to an affordable 3D printer

- Models of anatomy
 - PLA models: Base, Teeth, Jaw, Trachea, Mac Blade
 - TPU models: Thyroid (with Epiglottis), Esophagus, Tongue
- User Guides
 - List of parts
 - Files of part models to print with scaling size
 - IKEA guides for putting it together





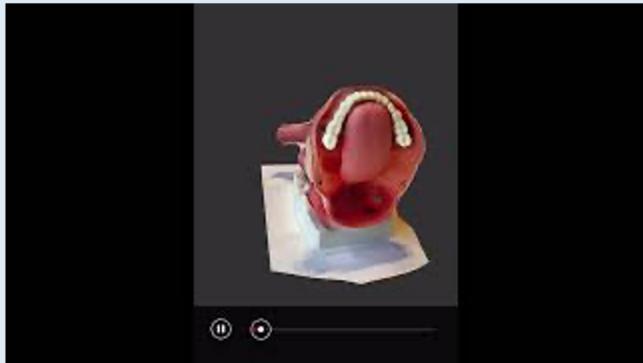
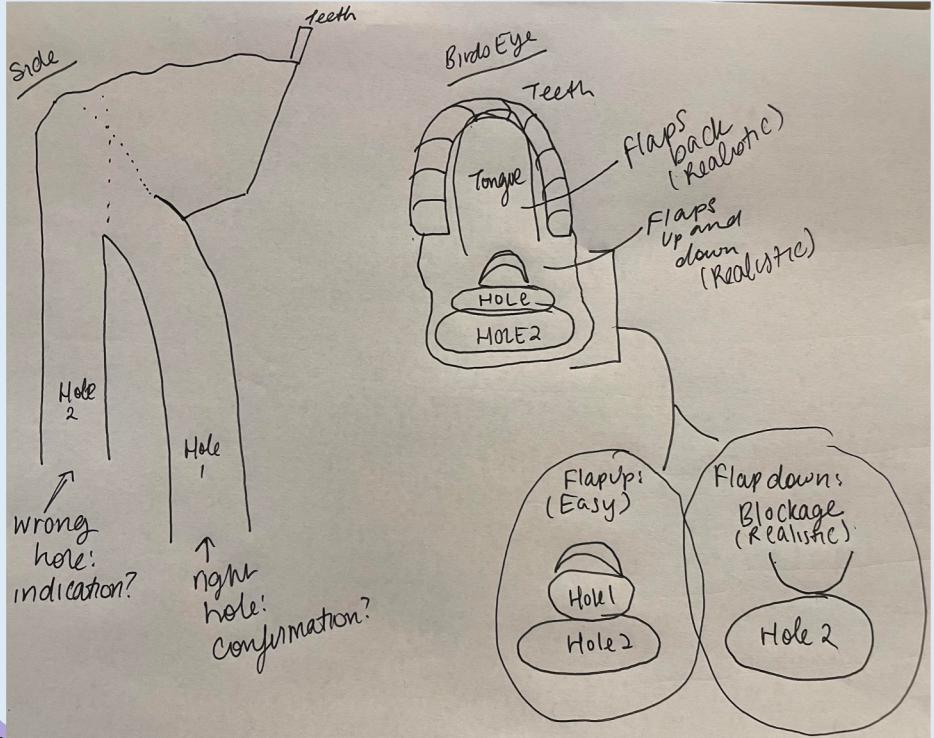
05.

Prototypes





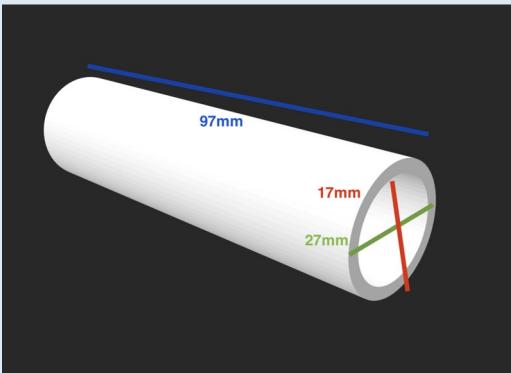
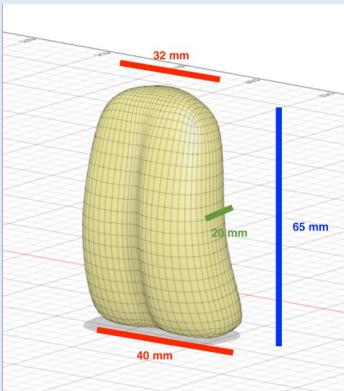
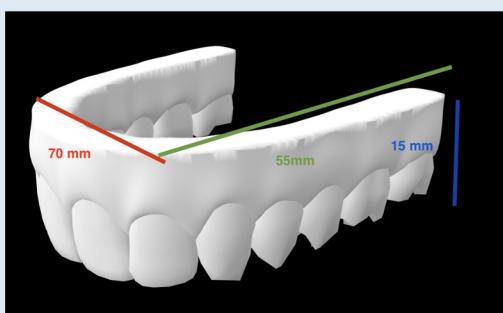
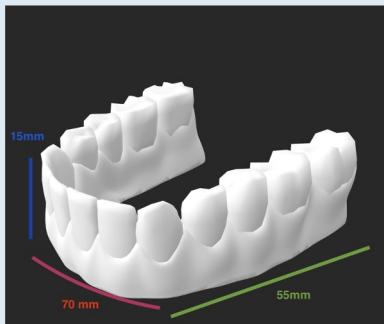
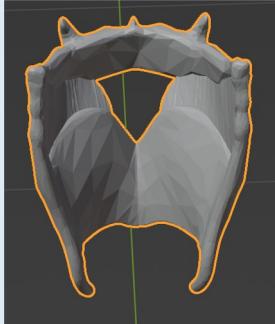
Prototypes

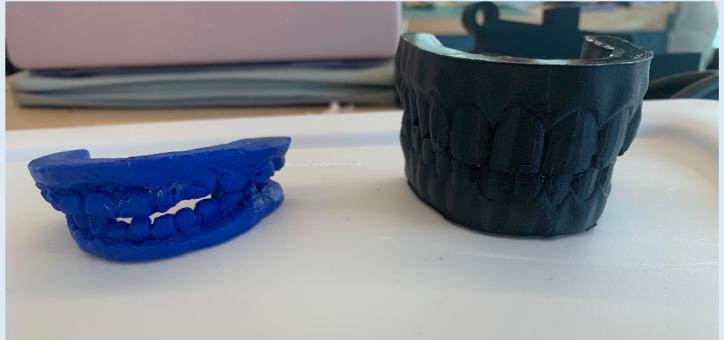


Prototype



Prints







Working Prototype





Thank you!

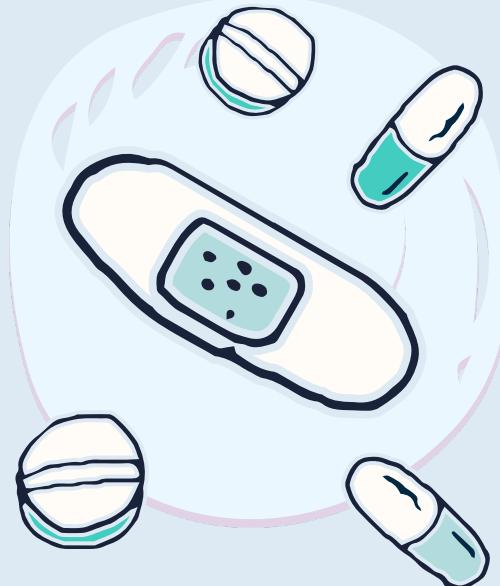
Questions?

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Challenge Theme

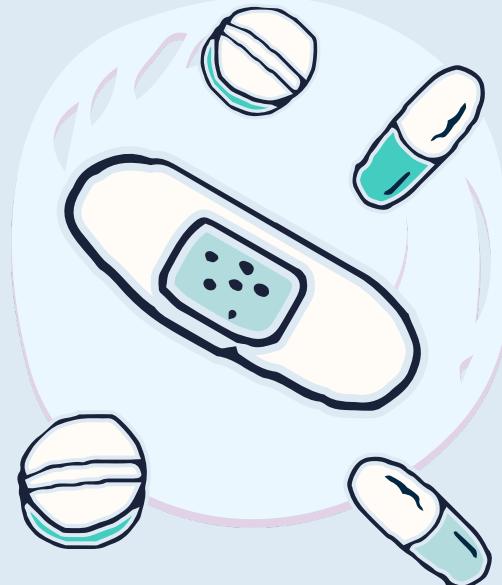
"Global health fellow who is currently working on **solutions to improve training/education**, increase capacity building and strengthen healthcare systems in emergency care in **low- and middle- income countries** would like to design training models using **digital fabrication technologies**."



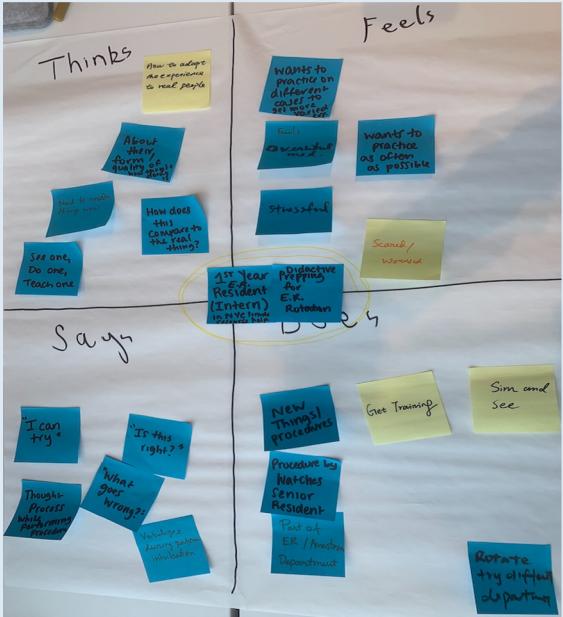


Our Challenge

"One of the **major challenges** for these countries is **access to high-quality models to learn clinical procedures**. These procedures can include learning how to **intubate, performing cricothyrotomies, inserting chest tubes, etc.** I would like to collaborate to use **low-cost, affordable, and easily sourceable materials**, to create simulation assemblies that can be **used for residents and medical students** to learn how to **perform a procedural skill**."



Appendix: Narrowing Scope



The group we focus on would be the 1st year Emergency Room Residents who need more prepping for the Rotation.

They are of high training demand:

-Growing demand for 1st-year Emergency Room Residents getting more practices.

-Growing demand for 1st-year Emergency Room Residents trying different intubation cases

Students gain more experience than just watching seniors if they have more access to the models.