SUGAR Rush: How an Open-Source Curriculum Led to Crowd Sourced Spin-Offs

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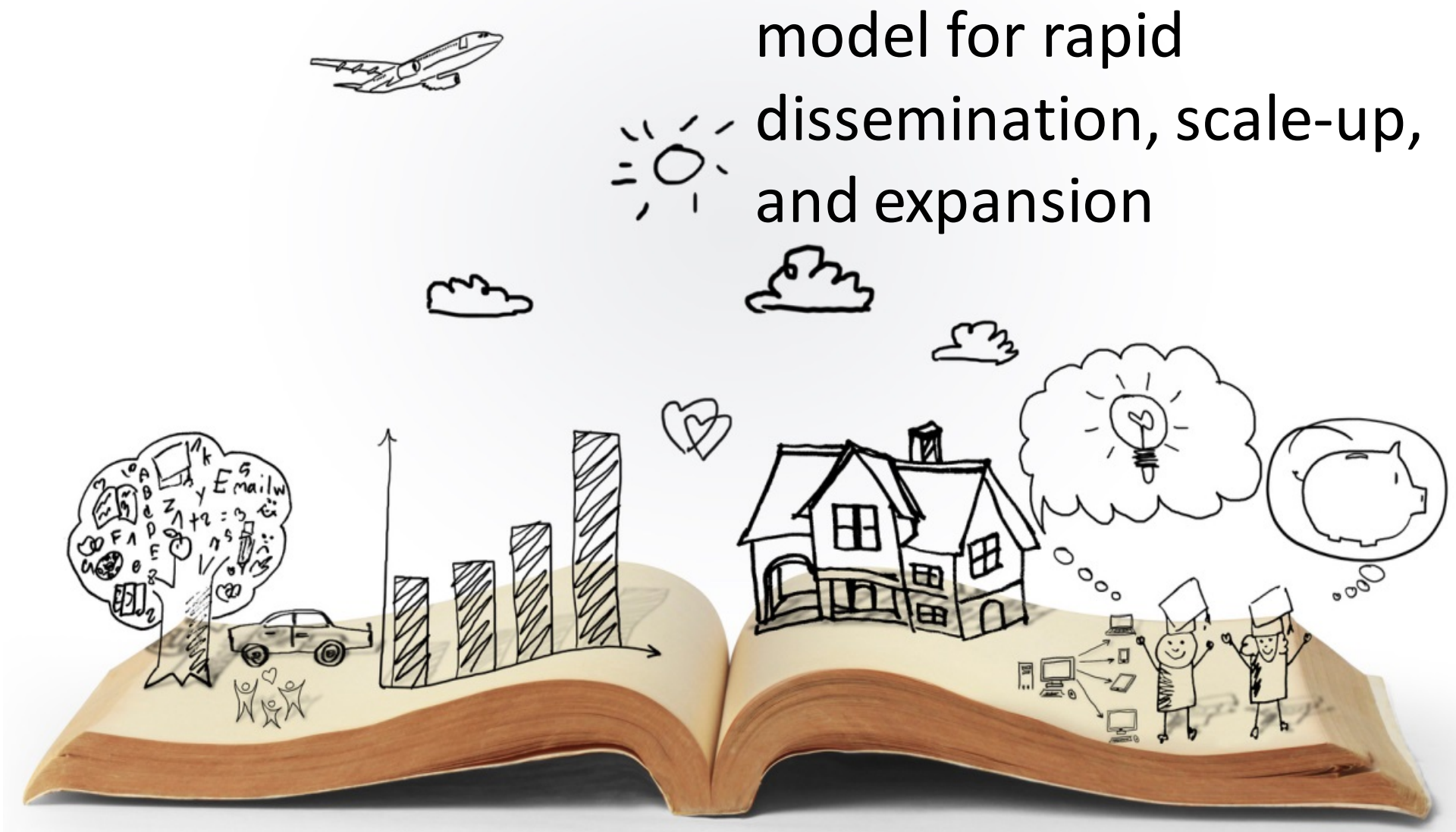
On Behalf of the SUGAR Spin-Off Investigators

Disclosure Slide

SUGAR receives grant support for the dissemination of the curriculum from:

- UW Health Clinical Simulation Program
- University of Minnesota's African Studies Initiative

Share the story of our curriculum roll-out as a model for rapid dissemination, scale-up, and expansion



Our Goal

Background:
What is SUGAR and why was it needed?

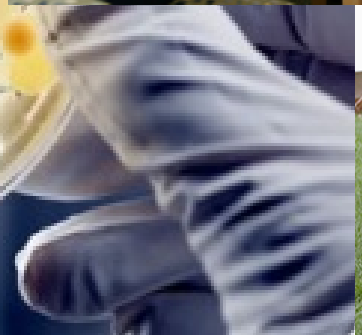
Of 198 U.S. Pediatric Residency Programs

Characteristic	n
GH Track	49 (24.7%)
GH Faculty Lead	131 (66.1%)
International Field Experience	115 (58.1%)
Domestic Field Experience	96 (48.5%)
Pre-travel Preparation*	84 (66.1%)
GH Lectures	107 (54.0%)
Scholarly Project	77 (38.9%)

Butteris et al *Pediatrics* 2015

Today's Lecture:

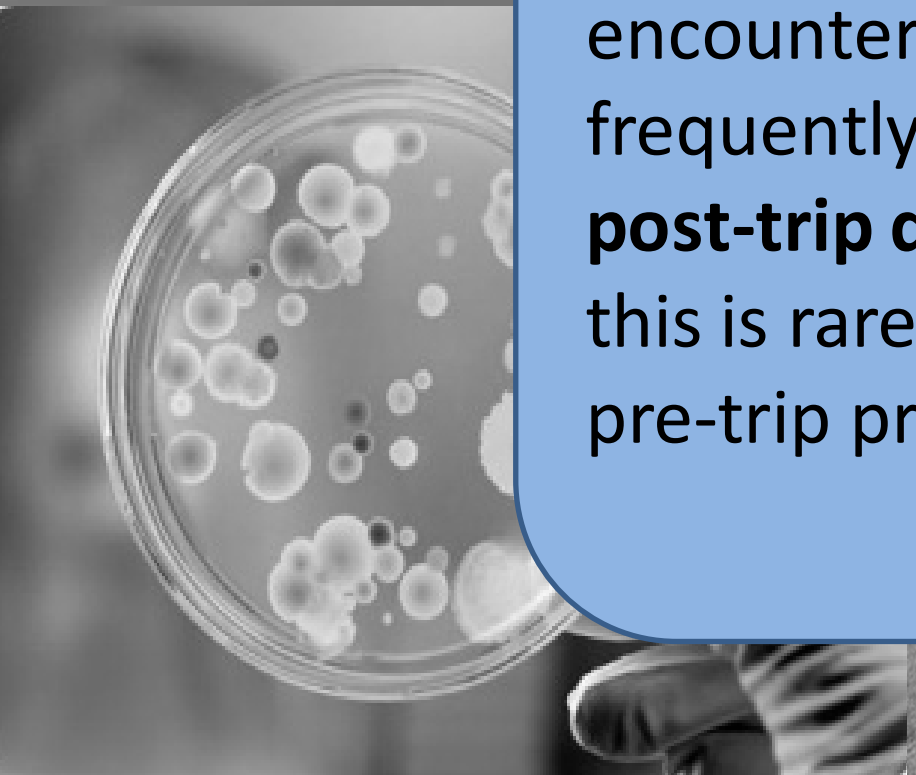
Malaria 101

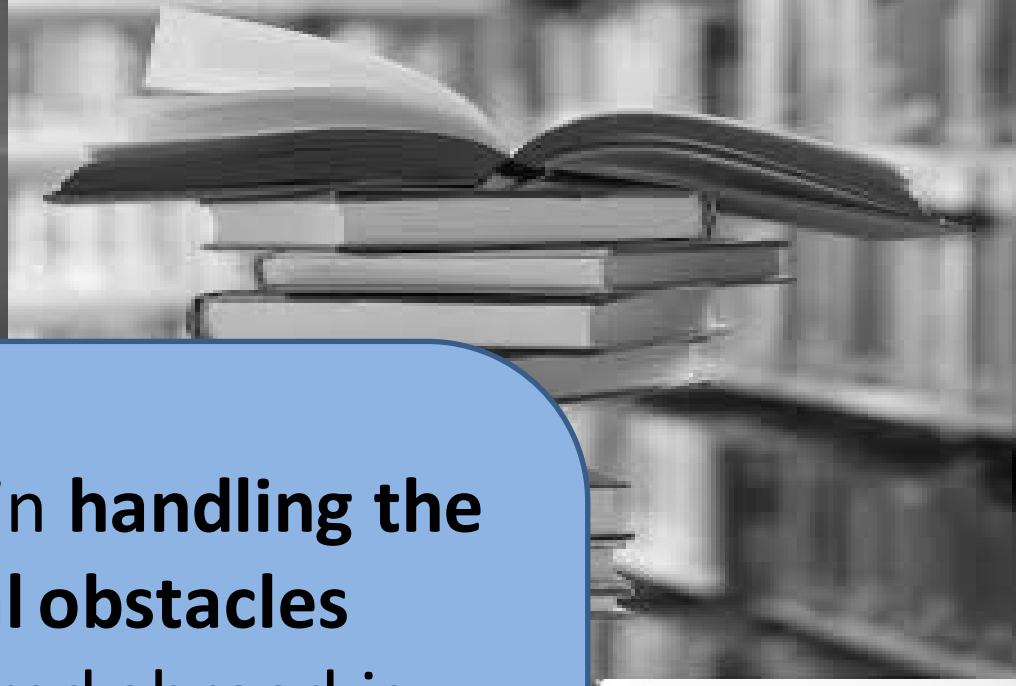


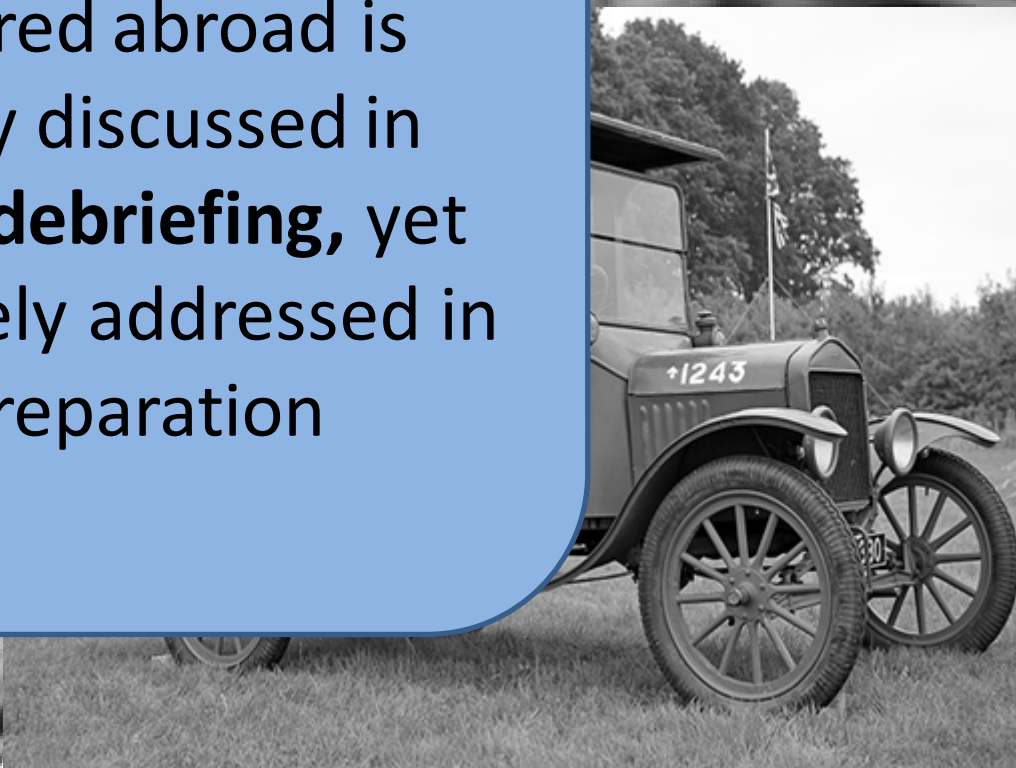
Today's Lecture:

Malaria 101

Difficulty in **handling the emotional obstacles** encountered abroad is frequently discussed in **post-trip debriefing,** yet this is rarely addressed in pre-trip preparation







Could we use medical simulation to prepare global health residents for common *emotional* challenges encountered abroad, rather than just medical preparation?

SIMULATION USE FOR SUGAR GLOBAL AWAY ROTATIONS

Turning an F into an A

Frustration

"I know what I would do back home to manage this disease, but I don't have the ability to do it here."

Ex: DKA without an insulin drip

Floundering

"I don't know what to do with the disease or where to find information that could help me."

Ex: Lymphocytic Interstitial Pneumonitis

Turning an F into an A

Failure

"I thought I knew how to make this patient better, but I am making them worse. What is different about this patient in this environment?"

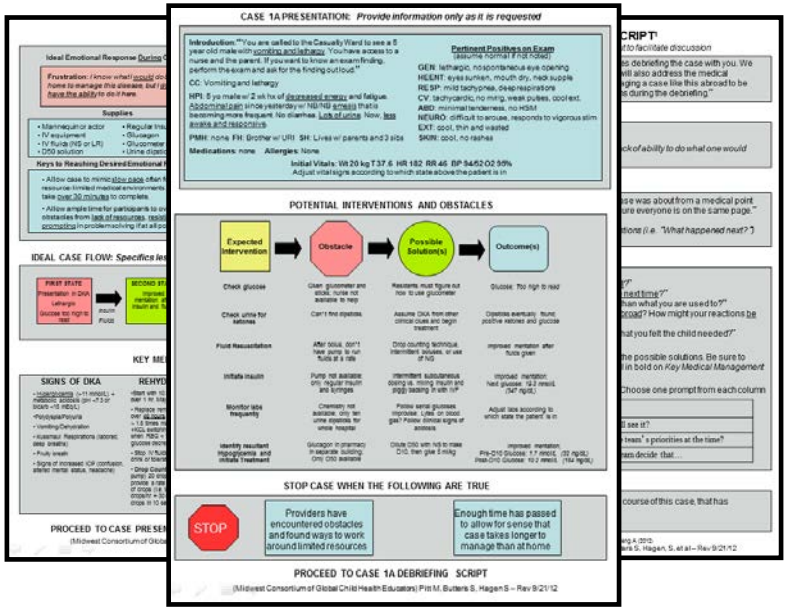
Ex: Management of shock in severe acute malnutrition

Futility

"Why does everyone seem so complacent with death here? Am I the only one who cares? What will happen to this patient if we 'save' her."

Ex: Prolonged resuscitation of a neonate without access to a ventilator

Successful Multi-Institutional Pilot


CASE 1A PRESENTATION: *Provide information only as it is requested*

Introduction: "You are called to the Casualty Ward to see a 6 year old male with vomiting and lethargy. You have access to a nurse and the parent. If you want to know an exam finding, perform the exam and ask for the finding out loud."

CC: Vomiting and lethargy

HPI: 5 yo male w/ 2 wk hx of decreased energy and fatigue. Abdominal pain since yesterday w/ NB/NB emesis that is becoming more frequent. No diarrhea. Lack of urine. Now, less awake and responsive.

PMH: none FH: Brother w/ URI SH: Lives w/ parents and 3 sibs

Medications: none **Allergies:** None

Pertinent Positives on Exam (assume normal if not noted)

GEN: lethargic, no spontaneous eye opening
HEENT: eyes sunken, mouth dry, neck supple
RESP: mild tachypnea, deep respirations
CV: tachycardic, no murmur, weak pulses, cool ext.
ABD: minimal tenderness, no HSM
NEURO: difficult to arouse, responds to vigorous stim
EXT: cool, thin and wasted
SKIN: cool, no rashes

Initial Vitals: Wt 20 kg T 37.6 HR 182 RR 46 BP 94/52 O2 99%
Adjust vital signs according to which state above the patient is in

POTENTIAL INTERVENTIONS AND OBSTACLES

Expected Intervention	Obstacle	Possible Solution(s)	Outcome(s)
Check glucose	Glucometer and strips, nurse not available to help	Residents must figure out how to use glucometer	Glucose: Too high to read
Check urine for ketones	Can't find dipsticks	Assume DKA from other clinical clues and begin treatment	Dipsticks eventually found; positive ketones and glucose
Fluid Resuscitation	After bolus, don't have pump to run fluids at a rate	Drop counting technique, intermittent boluses, or use of NG	Improved mentation after fluids given
Initiate insulin	Pump not available; only regular insulin and syringes	Intermittent subcutaneous dosing vs. mixing insulin and piggy backing in with IVF	Improved mentation; Hard glucose: 12.2 mmol/L (147 mg/dL)
Monitor labs frequently	Chemistry not available; only ten urine dipsticks for whole hospital	Follow serial glucoses (improvise: cues on blood gas? Follow clinical signs of acidosis	Adjust labs according to which state the patient is in
Identify resultant Hyperglycemia and initiate Treatment	Glucagon in pharmacy in separate building; Only D50 available	Dilute D50 with NS to make D10, then give 5 ml/kg	Improved mentation; Pre-D10 Glucose: 17 mmol/L (32 mg/dL) Post-D10 Glucose: 10.2 mmol/L (184 mg/dL)

STOP CASE WHEN THE FOLLOWING ARE TRUE

STOP

Providers have encountered obstacles and found ways to work around limited resources

Enough time has passed to allow for sense that case takes longer to manage than at home

PROCEED TO CASE 1A DEBRIEFING SCRIPT

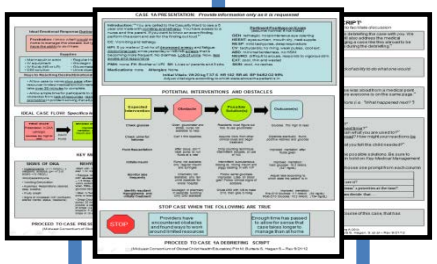
(Midwest Consortium of Global Child Health Educators) Pitt M, Butlers S, Hagen S – Rev 9/21/12

Now what?

Traditional Dissemination

IDEA

PILOT



Simulation Use for Global Away Rotations (SUGAR): Preparing Residents for Emotional Challenges Abroad—A Multicenter Study

PUBLISH RESULTS/ PRESENT

MedEdPORTAL AAMC

RELEASE "HOW TO"

HOLD HOSTAGE

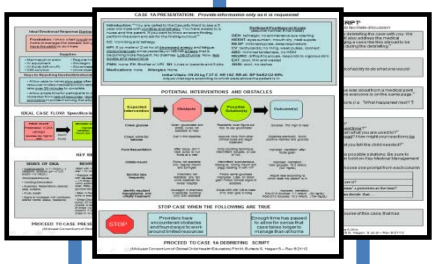
Our early stated goal:

If the idea works, make it as easy as possible for others to use it and adapt it

SUGAR Dissemination

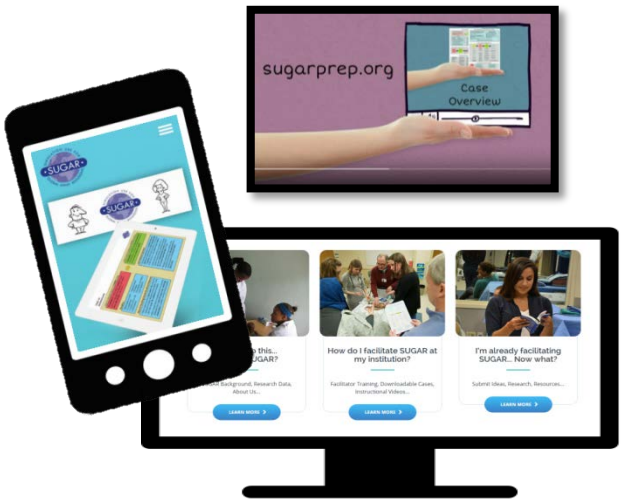
2012

2013 Multi-Institutional Pilot



Simulation Use for Global Away Rotations (SUGAR): Preparing Residents for Emotional Challenges Abroad—A Multicenter Study

2014



2015

PAS SAN DIEGO 2015

APPD

IMSH
Society for Simulation in Healthcare

What is SUGAR?

Simulation Use for Global Away Rotations (SUGAR) is a simulation-based curriculum used to prepare medical providers for common challenges (both practical and emotional) faced when working in resource-limited settings. This website is intended to provide the necessary training for facilitators interested in bringing SUGAR to their institutions and to provide a forum for the dozens of SUGAR facilitators already leading sessions across the country.

Learn More...

SUGAR Partners

I'm new to this... What is SUGAR?

SUGAR Background, Research Data, About Us...

LEARN MORE >

How do I facilitate SUGAR at my institution?

Facilitator Training, Downloadable Cases, Instructional Videos...

LEARN MORE >

I'm already facilitating SUGAR... Now what?

Submit Ideas, Research, Resources...

LEARN MORE >

SUGAR Home About SUGAR What is SUGAR? Facilitator Training
Download Cases Facilitator Forum Resources FAQ

Facilitator Training

Step 1: Watch the Overview Video

Step 2: Familiarize Yourself with the SUGAR and Debriefing Literature

In order to best understand the framework for SUGAR and the importance of skilled debriefing, we recommend you read at least the following two articles:

> Butteris SM, Gladding SP, Eppich W, Hagen SA, Pitt MB, Investigators S. Simulation Use for Global Away Rotations (SUGAR): Preparing Residents for Emotional Challenges Abroad-A Multicenter Study. *Academic pediatrics* 2014; **14**(5): 533-41.
>
> Eppich W, Cheng A. Promoting Excellence and Reflective Learning in Simulation (PEARLS): Development and Rationale for a Blended Approach to Health Care Simulation Debriefing. *Simulation in healthcare : journal of the Society for Simulation in Healthcare* 2015.

Additional recommended reading is located in the Resources Section

Step 3: Download Case Example

Download this sample case to follow along in the facilitator training videos.

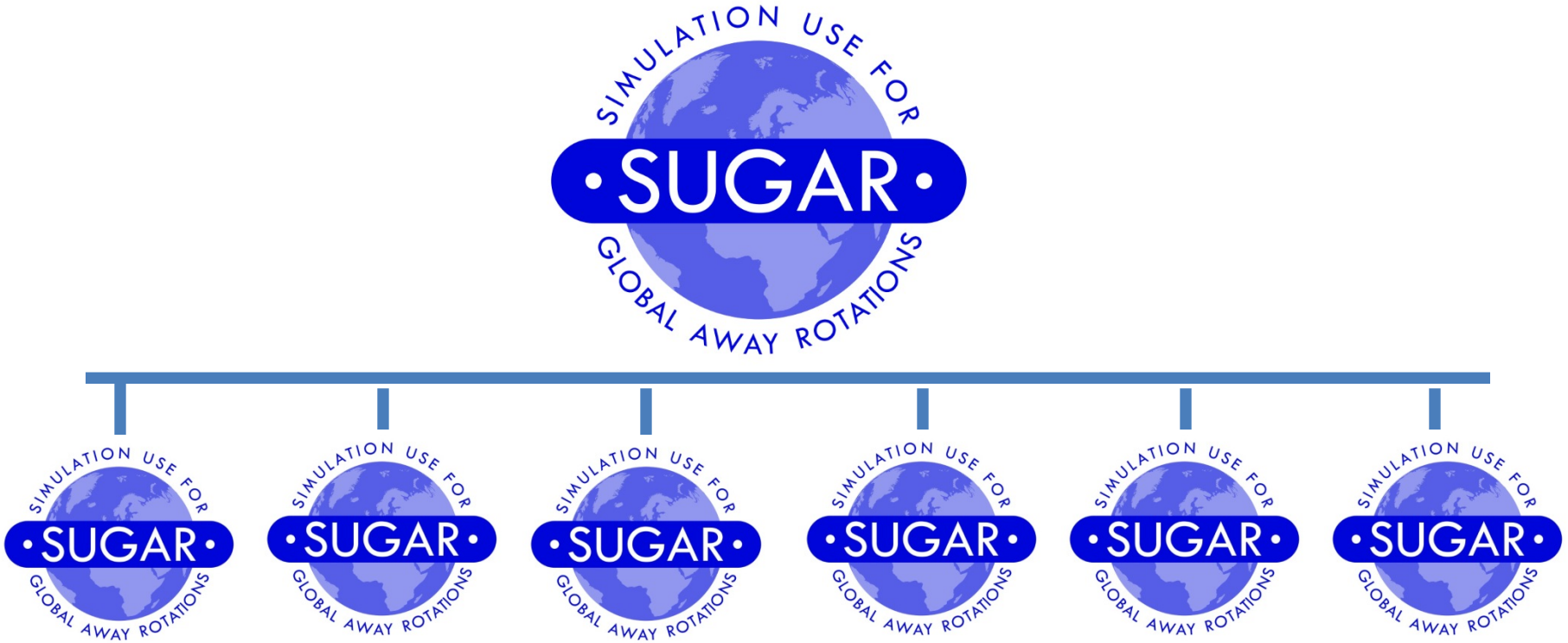
Step 4: Understand how to use the SUGAR Case Handouts

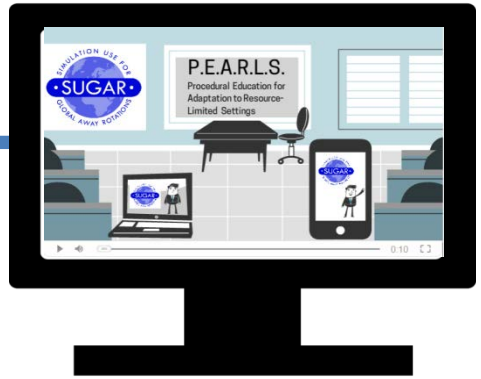
These three short tutorials (3-4 minutes each) provide an overview of how to use the SUGAR Case Handouts and Debriefing Script.

140 Facilitators, 85 Institutions

6 Countries

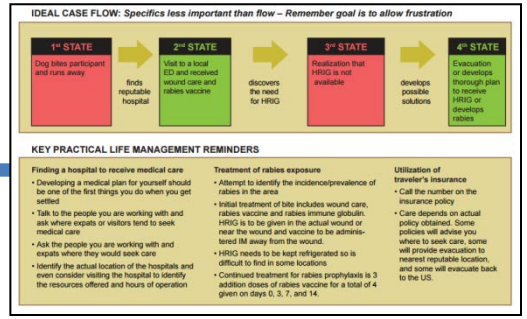
Dozens of spin-off projects underway with leads from new institutions





SUGAR PEARLS

(Procedural Education for Adaptation to Resource Limited Settings)



SUGAR CANE

(Cases about Non-Medical Events)

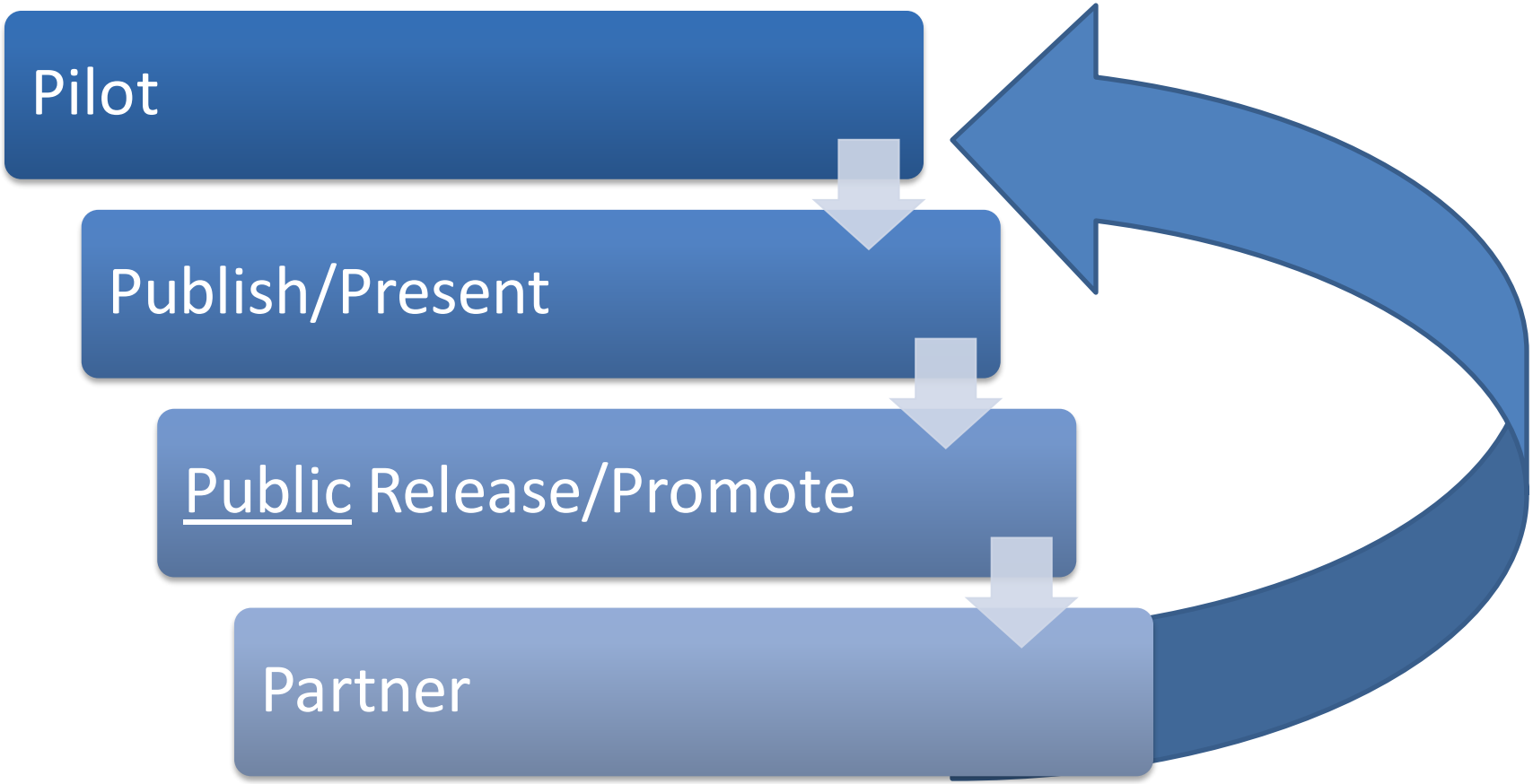
New Cases

(OB, Family Medicine, Surgery, Immigrant Health, Med Students, Nurses, Clinic)

SPICE

(SUGAR: Practical Insights from Core Educators)

Lessons Learned



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