Teaching Case Series from rural Uganda – Reasoning without Resources

CUGH is pleased to introduce a new bi-weekly feature: a case-series from rural Uganda called “Reasoning without Resources”. The target audience is clinicians practicing in low resource settings, medicine and family medicine residents, and senior medical students with an interest in clinical global health.

The series assumes that medical textbooks, written for those who can access and afford them, have limited relevance to making a diagnosis in most of the world’s hospitals. This case-series addresses that reality by developing clinical skills as the fundamental "diagnostic test" available to clinicians, and sound clinical reasoning as the clinician’s principle resource. Through its Question and Answer format, the series focuses as much on pedagogical process as on biomedical content. In taking on these broad basic challenges, it hopes to inform medical education and cost-effective medical practice in modern medical settings as well.

The format presented re-focuses education in "tropical medicine" on patients and their symptoms rather than micro-organisms. While assuming some familiarity with infectious pathogens and communicable and non-communicable disease concepts, the cases direct critical analysis to the challenges of bedside diagnosis. Each case study is introduced with a short vignette and followed by questions that guide clinical reasoning through the steps of observation, identification of key clinical data, conceptual "framing" of the diagnostic problem, development of a differential diagnosis that fits the "frame", and integration of epidemiologic and clinical data in estimating the disease probabilities that will guide cost-effective, empiric therapy.

The patient vignettes are based on actual patients we’ve cared for in rural southwest Uganda although some vignettes have been "tweaked" for educational purposes, and composites of real cases and clinical experience occasionally constructed. The vignettes illustrate common presentations of common diseases and their less frequent complications; unusual diseases, especially treatable ones with serious consequences; and common "problems" whose diagnosis and treatment unfold together with rational empiric therapy. Clinical data from the history and physical exam are emphasized, particularly the timing of and temporal relationships between symptoms, and reflect the depth and detail necessary for constructing a relevant differential and estimating disease probabilities without laboratory or imaging resources. The vignettes reflect "real life": the variability of clinical presentations, the rarity of the "classic case", and the limited sensitivity and specificity of "classic" findings. Findings that are clues to specific diseases sometimes appear, but "blind leads", common in clinical practice, do too.
Laboratory reports are few, restricted to those available in resource-poor settings in the developing world: i.e., a microscope (for smears), complete blood count, urine analysis and dipstick, glucometer, +/- malaria rapid test. If relevant and when working with electricity available (!), EKG, chest x-ray or ultrasound are included. Thus, one “problem” with the series is that the cases may too closely reflect the clinical reality of district hospitals in rural Africa where “gold standards” are rare and diagnoses are a product of epidemiologic probability, natural history and/or response to therapy. Hopefully such presumed diagnoses haven’t detracted from the pedagogical value of the discussions.

Each case is accompanied by 4-10 discussion questions that direct clinical reasoning and/or highlight diagnostic issues. In my teaching program in New York, the questions have proven to be particularly useful in focusing small group or "team" discussions among learners. To provide instructors with an overview to the case series the first case will be include both 1) the short case presentation and discussion questions, and 2) detailed “instructors notes” that can help guide case discussions. Subsequently, each case will be first presented with questions only, followed several weeks later with the “instructor notes” to that case - along with a new case with questions only.

We hope you enjoy the process and we invite your feedback, comments and suggestions.

About the Author:

Dr. Gerald Paccione is a Professor of Clinical Medicine at the Albert Einstein College of Medicine in the Bronx, New York, where his career has centered on medical education for the past 35 years – as a residency Program Director in Primary Care and Social Internal Medicine at Montefiore Hospital, and director of the Global Health Education Alliance at the school. He has served on the Boards of Directors of Doctors for Global Health, Doctors of the World USA, and the Global Health Education Consortium. He spends about 3 months a year in Uganda working on the Medicine wards of Kisoro District Hospital which, like most hospitals in the world that serve most of the world's population, has (almost) no resources. "At the bedside", he teaches Internal Medicine residents and medical students how to assimilate the elements of history, physical exam and epidemiologic probability into a diagnostic impression that, even without definitive testing, can lead to appropriate therapeutic strategies in the field.

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