

Figure 2.

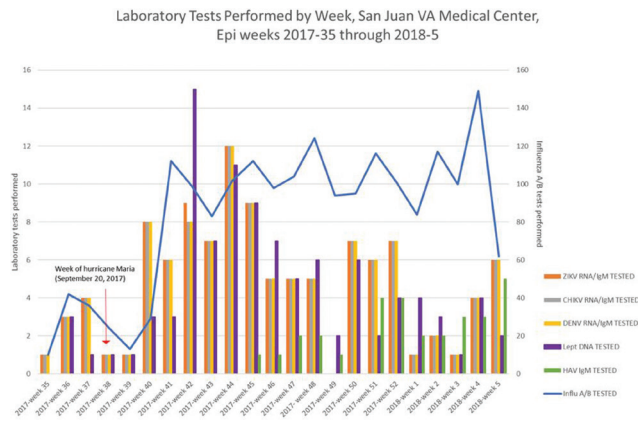
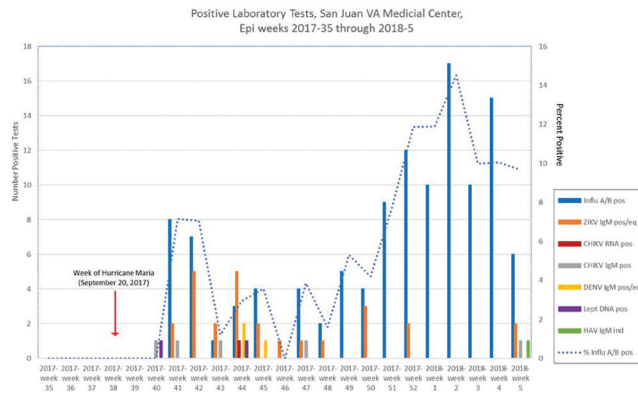


Figure 3.



Disclosures. All authors: No reported disclosures.

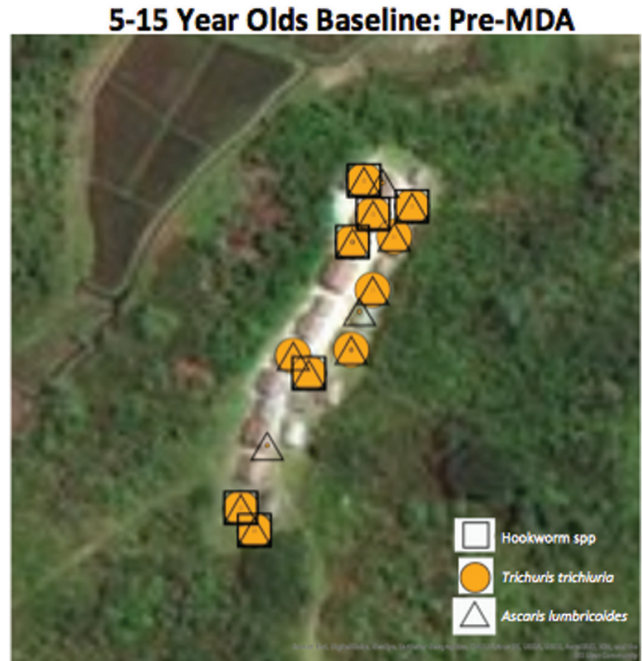
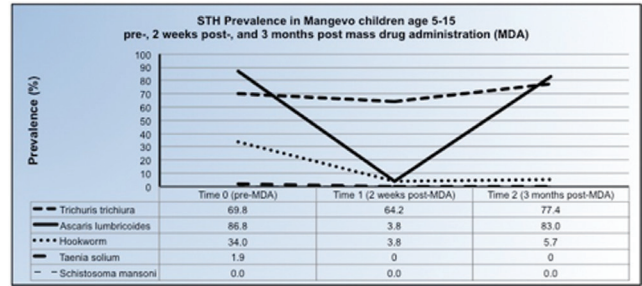
450. Using Geographical Information Systems to Interpret the Efficacy of Mass Drug Administration for Soil-Transmitted Helminthiasis in Rural Madagascar
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Background. In Madagascar, mass drug administration (MDA) of anti-parasitics is administered every 6 months to combat soil-transmitted helminthiasis (STH) in school-aged children, although little information exists as to its efficacy. In recent years, geographical information systems (GIS) have been used for visualization of patterns in disease epidemiology. This inexpensive technology may be leveraged to aid in education of local health workers toward a more integrated approach to control STH.

Methods. Baseline questionnaires and stool/blood samples were collected from participants of Mangevo, a rural village in southeast Madagascar. GPS coordinates and qualitative descriptions were collected from all village homes, common latrines, and animal pens. All children 5–15 years old were given MDA per WHO protocol. Stool was again collected from these children 2 weeks later and 3 months later. Parasitological examination of stool samples for STH eggs was performed using Spontaneous Sedimentation Technique. Results were overlaid onto GIS maps and used to further educate the local mobile health team.

Results. A total of 183 participants were eligible for the study. Analysis found 89% of adults >15 years old were infected with one or more parasite and 100% of children 5–15 were infected with one or more parasite at time 0. *Trichuris trichuria* prevalence fell 8% ($P < 0.5$) in 2 weeks and climbed 17% ($P < 0.05$) by 3 months follow-up. *Ascaris lumbricoides* prevalence fell 96% ($P < 0.0001$) in the 2 weeks and climbed 95% ($P < 0.0001$) by 3 months follow-up. Hookworm prevalence dropped 89% ($P < 0.0001$) in 2 weeks and climbed 5% ($P < 0.5$) by 3 months follow-up. Prevalence data, descriptive results, and GPS coordinates of village homes were integrated into a GIS maps pre- and post-MDA of children, and pre-MDA for adults.



Conclusion. While GIS has been used to yield insights into the ecology of infection, this study examined the efficacy of the current MDA through the lens of small scale GIS mapping. This may be an ideal and inexpensive technology to help in the implementation of future interventions of the government-mandated STH treatment protocol and work toward the strengthening of local health teams.

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451. High-Frequency of Multi-Drug-Resistant Organisms (MDRO) at University Teaching Hospital (UTH), Lusaka, Zambia

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Background. Antibiotic resistance is a worldwide problem. Prior studies on patterns of resistance in Zambia depended on laboratory methods that lacked standardization. UTH is a 1,655-bed quaternary care hospital and the primary teaching hospital of Zambia. Since 2015, the microbiology laboratory has used Vitek 2 Compact (bioMérieux, Inc., France) for standardized detection of resistance.

Methods. We conducted a retrospective cross-sectional study of data collected on bacterial isolates analyzed from July 2015 to April 2017. We entered the data into WHONET 5.6 and aggregated it to develop hospital antibiograms. Due to high levels of resistance, we defined susceptible, intermediate, and resistant as >70%, 40–70%, and <40% of isolates sensitive to a drug, respectively. To improve usability, a version replacing the percent susceptible with these categories was developed.

Results. We analyzed 2,019 isolates to identify susceptibility patterns to commonly used antibiotics at UTH. *Escherichia coli* and *Klebsiella pneumoniae*, the most commonly isolated Gram-negative (GN) organisms, were resistant to most drugs including ceftriaxone, indicating high rates of extended-spectrum β -lactamase production. Methicillin-resistant *Staphylococcus aureus* (MRSA) made up 37% of *S. aureus*