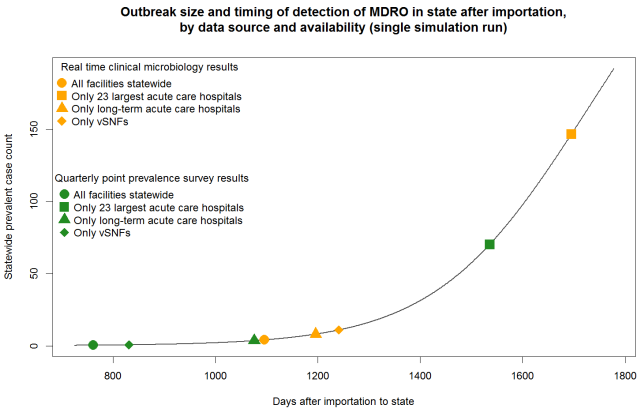

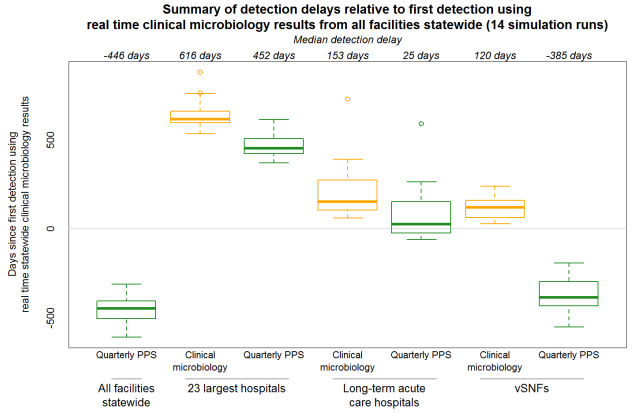

Disclosures. **All authors:** No reported disclosures.

540. The Impact of Diet and Oral Hygiene on the Risk of Multidrug-Resistant Organism Carriage in the Mouth and Gut

Ashley Kates, PhD, MS[1]; Lauren Watson, BS[2]; Julie Mares, PhD, MSPH[1]; Krista Christensen, PhD, MPH[1]; Lindsay Kalan, PhD[2]; Kristen Malecki, PhD, MPH[1]; Paul Peppard, PhD[1]; Ajay Sethi, PhD, MHS[1] and Nasia Safdar, MD, PhD[1]; [1]University of Wisconsin-Madison School of Medicine and Public Health, Madison, Wisconsin; [2]University of Wisconsin-Madison, Madison, Wisconsin

Session: 59. HAI: MDRO: General
Thursday, October 3, 2019: 12:15 PM

Background. Little is known about the relationship between oral hygiene and multidrug-resistant organism in the mouth and gut. We aimed to assess the relationship of oral hygiene and diet with multidrug-resistant organism (MDRO) carriage in the oral cavity and gut.

Methods. Participants were adults over age 18 from the 2016–2017 Survey of the Health of Wisconsin (SHOW) and its ancillary Wisconsin Microbiome Study. SHOW surveys residents of Wisconsin, collecting health determinants including a food frequency questionnaire, oral health, as well as biologic specimens. MDROs were defined as the presence of methicillin-resistant *Staphylococcus aureus*, Vancomycin-resistant *Enterococcus*, and Fluoroquinolone-resistant Gram-negative bacteria identified via culture from saliva, oral swabs, and stool samples. Statistical analysis was performed in R v3.5.1. Univariate analyses were conducted for all variables in the data set. Any variable with a P-value < 0.2 in the univariate analysis was considered for the logistic regression. Logistic regression using the glm function was done modeling MDRO carriage in either the saliva, oral swab, saliva and oral samples combined, and stool against diet, oral health, and known confounders.

Results. 876 participants were included in the dataset with all 876 providing oral and stool samples and 784 providing saliva samples. Thirty-three patients were MDRO positive in the saliva (4.2%), 36 were positive in the oral swabs (4.1%), 55 were positive in either the saliva or oral swabs (6.3%), and 103 were positive in the stool (11.8%). In the logistic regression, consumption of whole grains was significantly associated with reduced MDRO carriage in the saliva ($P = 0.046$) and saliva and oral swab combined ($P = 0.036$) data sets (Table 1).

Conclusion. Consuming more whole grains was associated with a lower prevalence of MDRO carriage in the oral cavity. Higher levels of sugar consumption were associated with a higher prevalence of MDRO in the gut. Oral hygiene was not found to be associated with MDRO colonization in the mouth and a higher prevalence in the gut in this cross-sectional study. This may be due to over-reporting of hygiene practices by participants. Being positive for an MDRO in the oral cavity significantly increased the risk of MDRO carriage in the gut.

	Saliva	Oral Swab	Any Oral MDRO	Stool
Exposure	N (%)	N (%)	N (%)	N (%)
MDRO carriage				
Yes	33 (4.2)	36 (4.1)	55 (6.3)	103 (11.8)
No	751 (95.8)	840 (95.9)	821 (93.7)	773 (88.2)
Categorical Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age				
Under 50	1.16 (0.51-2.54)	1.11 (0.31-3.56)	1.09 (0.57-2.03)	3.01 (0.05-1.16)
Over 50	-Ref-	-Ref-	-Ref-	-Ref-
Gender				
Female	-Ref-	-Ref-	-Ref-	-Ref-
Male	0.75 (0.30-1.79)	0.63 (0.19-1.85)	0.70 (0.36 – 1.13)	1.03 (0.49-2.14)
Smoker				
Yes	NA	0.81 (0.23 – 2.53)	NA	0.95 (0.33-2.49)
No	NA	-Ref-	NA	NA
Antibiotic Use				
Yes	0.86 (0.13-3.10)	1.63 (0.23-7.01)	1.68 (0.61 – 3.96)	1.74 (0.45-5.46)
No	-Ref-	-Ref-	-Ref-	-Ref-
BMI				
Underweight	0.00 (0.00-2.72)	2.03 (0.0-1.1e^{33})	4.74 (0.22-44.05)	0.00 (0.0-2.1e^{45})
Normal	-Ref-	-Ref-	-Ref-	-Ref-
Overweight	2.06 (0.55-9.88)	2.20 (0.47-15.8)	0.99 (0.39-2.58)	1.19 (0.49-3.07)
Obese	3.59 (1.16-15.83)*	1.56 (0.36-10.80)	1.34 (0.63-3.16)	0.48 (0.19-1.28)
Oral Hygiene				
Good	-Ref-	1.47 (0.36-5.02)	0.79 (0.32-1.69)	2.76 (1.19 -6.34)*
Poor	1.17 (0.44-3.67)	-Ref-	-Ref-	-Ref-
Continuous Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Fiber (grams)	1.25 (0.92-1.64)	1.17 (0.92-1.43)	1.10 (0.93-1.21)	NA
Calcium (milligrams)	0.99 (0.99-1.002)	NA	NA	NA
Whole grains (ounces)	0.43 (0.17-0.93)*	0.41 (0.12-1.03)	0.56 (0.14-0.93)*	NA
Produce (cups)	0.43 (0.29-1.71)	0.44 (0.13-1.29)	0.59 (0.31-1.09)	NA
Dairy (cups)	2.49 (0.25-30.32)	NA	NA	NA
Sugar (tsp)	NA	NA	NA	1.05 (1.01-1.1)*

NA= Not applicable, variable did not meet criteria to be included in final model.
*Indicates significance (p<0.05)

Disclosures. **All authors:** No reported disclosures.

541. Factors Associated with the Persistence of Colonization by Multidrug-Resistant Organisms in Cali, Colombia

Juan Diego Velez, MD[1]; Marly Orrego, MSc[1]; Sofia Montes, MD[2]; Eric Tafur, MD[2]; Claudia M. Parra, MD[1]; Andres Castro, BSc[1]; Ana Milena Ruiz, MD[1]; Nora Guarin†, MD MSc[1] and Fernando Rosso, MD, MSc[1]; [1]Fundación Valle del Lili, Cali, Valle del Cauca, Colombia; [2]Universidad Icesi, Cali, Valle del Cauca, Colombia

Session: 59. HAI: MDRO: General
Thursday, October 3, 2019: 12:15 PM

Background. Colonized patients represent a reservoir for transmission to other non-colonized patients for health institutions, so surveillance measures and contact precautions have been taken in the worldwide to mitigate transmission. However, despite the different interventions implemented, factors associated with persistence have not been evaluated in our context. This study aimed to describe the persistence of colonization in patients with multidrug-resistant organisms (MDROs) re-admitted to a health institution.

Methods. A retrospective observational study was conducted. Patients re-admitted with a previous positive rapid test for MDROs, who had received chlorhexidine bathing and contact precautions during hospitalization were included. Samples were obtained from two rectal and one nasal swap. Colonization was defined as MDRO detection in at least one anatomical site, in the absence of symptoms or signs of infection. Persistence was defined as two positive screening for the same MDRO. Laboratory tests were chromID®, CHROMID® CARBA and MacConkey agar. VITEK MS® MALDI-TOF conducted MDROs genus identification, and carbapenem-resistant was evaluated through Sensi-Disc™. Logistic regression was performed to examine any association between persistence and clinical data.

Results. A total of 4,362 screening for MDROs was analyzed form July 2015 to December 2016, and 142 patients were included in the study; the median age was 39 years (IQR=12–62) and 56% were male. The most frequent MDRO was carbapenem-resistant Enterobacteriaceae. There was a statistically significant difference in length of hospitalization ($P = 0.003$) and ICU ($P = 0.035$) between non-colonized and persistence of colonization. Factor associated with persistence of colonization included liver disease [OR=3.1; 95% CI: 1.068–9.019; $P = 0.037$], history of infection in the last year [OR=3.78; 95% CI: 1.036–13.839; $P = 0.044$], use of permanent urinary catheter [OR=6.48; 95% CI: 1.314–31.975; $P = 0.022$], history of gastrostomy before hospitalization [OR=5.37; 95% CI: 1.547–18.638; $P = 0.008$], and use of nasogastric tube [OR=5.14; 95% CI: 1.108–23.861; $P = 0.036$].

Conclusion. It is necessary to consider the previous history of infection in the last year, and other patient's comorbidities and conditions as risk factors of persistence to colonization by MDROs.

Disclosures. **All authors:** No reported disclosures.

542. Los Angeles County Acute Care Regional Antibiogram Suggests Changing Landscape of MDRO Threats Between 2015 and 2017

James McKinnell, MD[1]; Chelsea Foo, MPH[1]; Kelsey OYong, MPH, CIC[1]; Janet Hindler, MCLS[2]; Sandra Ceja, MPH[3]; Leah Bloomfield, BS[4]; Joanna Felix-Mendez, BA[4]; Gregory Tchakalian, BA[4]; Aura Hurtado, BA[3]; Alyssa Eliopulos, BA[3]; Jake Sinkowitz, BA[3]; Crystal Torres, BSN[3];