

# The Importance of Shiga Toxin-Producing *Escherichia coli* O145:NM[H28]/H28 Infections in Argentina, 1998–2020

Claudia Carolina Carbonari <sup>1,\*</sup>, Elizabeth Sandra Miliwebsky <sup>1</sup>, Gisela Zolezzi <sup>1</sup>, Natalia Lorena Deza <sup>1</sup>, Nahuel Fittipaldi <sup>4</sup>, Eduardo Manfredi <sup>1</sup>, Ariela Baschkier <sup>1</sup>, Beatriz Alejandra D'Astek <sup>1</sup>, Roberto Gustavo Melano <sup>2,3</sup>, Carla Schesi <sup>1</sup>, Marta Rivas <sup>1</sup> and Isabel Chinen <sup>1</sup>

<sup>1</sup> Servicio Fisiopatogenia, Departamento Bacteriología, Instituto Nacional de Enfermedades Infecciosas-ANLIS “Dr. Carlos G. Malbrán”, City of Buenos Aires 1282, Argentina; emiliwebsky@anlis.gob.ar (E.S.M.); gzolezzi@anlis.gob.ar (G.Z.); ndeza@anlis.gob.ar (N.L.D.); emanfredi@anlis.gob.ar (E.M.); abaschkier@anlis.gob.ar (A.B.); badastek@gmail.com (B.A.D.); cschesi@anlis.gob.ar (C.S.); mrivas@inmunova.com (M.R.); ichinen@anlis.gob.ar (I.C.)

<sup>2</sup> Public Health Ontario, Toronto Laboratories, Toronto, Canada; roberto.melano@oahpp.ca (R.G.M.);

<sup>3</sup> Department of Laboratory Medicine and Pathobiology, University of Toronto, Toronto ON M5G 1M1, Canada

<sup>4</sup> Faculty of Veterinary Medicine, University of Montreal, Saint-Hyacinthe QC J2S 2M2, Canada; nfittipaldi@umontreal.ca

\* Correspondence: ccarbonari@anlis.gob.ar

## Supplementary Materials

**Table S1.** Outbreaks description. (†) Deceased case.

No. of Event	Type of Event	Index Case	Total No. of STEC Case & Contacts Detected	City, Province Date	PFGE Patterns of STEC O145 Strains Outbreak Associated
1	Institutional / day-care center outbreak	HUS case 1 year old boy Co-infection STEC shedding for 18 days	1 HUS case with long shedding. (Four strains STEC O145:NM[H28] stx2a/eae/ehxA and one STEC ONT:HNT) 1 HUS case and 1 asymptomatic case (O145:NM stx2a/eae/ehxA)	Rosario, Santa Fe January, 2005	ARENMX01.0006 (2 HUS cases one present 2 strains) and ARENMX01.0043 (asymptomatic) with 88.9% similarity. ARENMX01.0042 (2 strains from excretion) with 74% similarity.
2	Family outbreak	Undetermined	3 HUS cases 1 asymptomatic contact (O145:NM[H28] stx2a/eae/ehxA)	Mar del Plata, Buenos Aires January and February, 2006	ARENMX01.0061 - 100% similarity
3	Family outbreak	HUS case 20 months of age	1 HUS case (STEC negative) and 3 asymptomatic household contacts (2 sisters and the father) (O145:NM[H28], stx2a/eae/ehxA)	Neuquén, Neuquén November, 2006	ARENMX01.0006 - 100% similarity
4	Family outbreak	HUS case	1 HUS case and 1 asymptomatic contact (sister) (O145:NM[H28] stx2a/eae/ehxA)	Córdoba, Córdoba January 2011	ARENMX01.0040 - 100% similarity
5	Institutional / kindergarten outbreak	HUS case (†) 5 years old boy	1 HUS case (†), 1 BD case (3 positive samples) and 2 D non-complicated (one D with 3 positive samples) (O145:NM[H28], stx <sub>2a</sub> /eae/ehxA) 1 contact (O111:NM, stx <sub>1a</sub> /eae/ehxA)	City of Buenos Aires April, 2011	ARENMX01.0135 (HUS) ARENMX01.0136 (BD 1 <sup>st</sup> sample and D – 100% similarity) ARENMX01.0137 (D 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> sample; BD 2 <sup>nd</sup> and 3 <sup>rd</sup> sample – 100%) 84.6% similarity among all the strains
6	Institutional / kindergarten outbreak	HUS case Co-infection 10 months old girl	1 HUS (two positive samples) and 1 D case (O145:NM[28], stx <sub>2a</sub> /eae/ehxA and O157:H7, stx <sub>2a</sub> /stx <sub>2c</sub> /eae/ehxA) 1 BD case (O157:H7, stx <sub>2a</sub> / stx <sub>2c</sub> eae/ehxA) 1 Contact (O26:H11, stx <sub>1a</sub> /eae/ehxA and O157:H7, stx <sub>2a</sub> /stx <sub>2c</sub> / eae/ehxA) 1 D case (O91:H21, stx <sub>2c</sub> /ehxA) 1 Contact (O103:NM, stx <sub>1a</sub> / eae/ehxA)	City of Buenos Aires May, 2011	ARENMX01.0138 (HUS 1 <sup>st</sup> and D – 100% similarity) ARENMX01.0139 93.3% similarity among all the strains

1 Contact (O22:H11, <i>stx</i> <sub>1a</sub> / <i>stx</i> <sub>2a</sub> / <i>ehxA</i> )					
7	Family out-break	HUS case 23 months old girl	1 HUS case and 2 contacts (father and sister) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	City of Buenos Aires December, 2011	ARENMX01.0119 - 100% similarity
8	Family out-break	DS case 8 years old boy	1 BD case and 1 contact (sister) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Tandil, Buenos Aires December, 2011	ARENMX01.0169 - 100% similarity
9	Institutional / Day-care center outbreak	HUS case 2 years old girl	1 HUS and 2 asymptomatic contacts (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	San Carlos de Bariloche, Rio Negro October, 2012	ARENMX01.0194 (HUS and contact – 100% similarity) ARENMX01.0212 (contact - 90.5% similarity)
10	Family out-break	HUS case	1 HUS and 1 asymptomatic contact (brother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	City of Buenos Aires January 2015	ARENMX01.0207 – 100% similarity
11	Family out-break	HUS case 17 months old	1 HUS case (STEC negative) and 1 asymptomatic contact (sister) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Villarino, Buenos Aires January 2016	ARENMX01.0274 (contact)
12	Family out-break	HUS case 8 months old boy	1 HUS case (STEC negative) and 1 asymptomatic contact (mother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	San Carlos de Bariloche, Rio Negro February, 2016	ARENMX01.0261 - 100% similarity
13	Family out-break	BD case 8 years old boy	1 BD case and 3 asymptomatic contacts (2 sisters and 1 brother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Maisonave, La Pampa August, 2016	ARENMX01.0120 (BD 1 <sup>st</sup> , 2 <sup>nd</sup> and 4 <sup>th</sup> – 100% similarity) and ARENMX01.0279 (contacts with 92.4% similarity)
14	Family out-break	D case 1 year old boy	1 D case and 6 contacts with diarrhea (4 brothers, 2 sisters) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Gral. Pico, La Pampa December, 2016	ARENMX01.0281 - 100% similarity
15	Institutional / Kindergarten outbreak	HUS case 5 years old girl	3 HUS cases (two are brother and sister) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Vicente López, Buenos Aires July, 2017	ARENMX01.0303 – 100% similarity
16	Family out-break	D case 3 years old boy	1 D case and 2 asymptomatic contacts (mother and unknown) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	San Justo, Buenos Aires February, 2018	ARENMX01.0120 (D 1 <sup>st</sup> , 2 <sup>nd</sup> and contacts – 100% similarity)
17	Family out-break	HUS case 20 months old boy	1 HUS case and 2 asymptomatic contacts (sister and mother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Hilario Lagos, La Pampa March, 2018	ARENMX01.0319 (HUS 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> and contacts – 100 similarity)
18	Family out-break	HUS case 6 months old boy	1 HUS and 1 asymptomatic contact (father) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Bahía Blanca, Buenos Aires November 2018	ARENMX01.0340 – 100% similarity
19	Family out-break	HUS case 2 years old	1 HUS (STEC negative) and 1 asymptomatic contact (mother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Valcheta, Rio Negro May 2018	ARENMX01.0324
20	Family out-break	HUS case 2 years old	1 HUS (STEC negative) and 2 asymptomatic contacts (sister and mother) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Bahia Blanca, Buenos Aires March 2019	ARENMX01.0076 – 100% similarity
21	Family out-break	D case 12 years old boy Long shedding (5 positive samples)	1 D case and 1 asymptomatic contact (father) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	San Carlos de Bariloche, Rio Negro June 2019	ARENMX01.0399 (2 <sup>nd</sup> ) ARENMX01.0401 (3 <sup>rd</sup> ) ARENMX01.0402 (4 <sup>th</sup> , 5 <sup>th</sup> and 6 <sup>th</sup> sample) with 94.3% similarity (Contact non-typeable)
22	Family out-break	D case 2 years old girl	2 D case (index case and sister) (O145:NM[28], <i>stx</i> <sub>2a</sub> / <i>eae</i> / <i>ehxA</i> )	Realicó, La Pampa November 2020	ARENMX01.0400 (HUS 1 <sup>st</sup> , 2 <sup>nd</sup> and contact – 100% similarity)