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**TITLE:** Gaps in Gastric Cancer Risk Factor Management: Analysis of Electronic Health Data and Provider/Patient Perspectives

**PRINCIPAL INVESTIGATOR:** Dorothy Long Parma, MD, MPH

**CONTRACTING ORGANIZATION:** University of Texas Health Science Center at San Antonio

**REPORT DATE:** June 2020

**TYPE OF REPORT:** Annual

**PREPARED FOR:** U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

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| <b>1. REPORT DATE (DD-MM-YYYY)</b><br>June 2020   |  | <b>2. REPORT TYPE</b><br>Annual   |  | <b>3. DATES COVERED (From - To)</b><br>15/05/2019-14/05/2020 |  |
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| <b>13. SUPPLEMENTARY NOTES</b>  |  |                                   |  |  |  |
| <b>14. ABSTRACT</b><br>This study addressed factors and their interactions contributing to disparities in testing and treatment of <i>H. pylori</i> (HP) infection and related gastric disorders (atrophic gastritis, gastric ulcer), and gastric cancer [GC; gastric adenocarcinoma (GCA), gastric non-Hodgkin's lymphoma (GL) and gastric MALT lymphoma (gMALT) diagnosis and treatment, among Latinos relative to non-Latinos at two affiliated but independent health systems in San Antonio, Texas. Secondary data collection/analysis of electronic health records (EHR) showed the study cohort was predominantly female, Hispanic, <i>H. pylori</i> positive (for non-GC disorders), seen via ambulatory visit at the safety-net hospital system (UHS), and insured by local safety net (Carelink) or other subsidized plans (Medicare, Medicaid, SCHIP). There was an increasing trend in all GCs over the period studied 2007-2018. Updated dataset (05/2020) included ages 18-88 and all races, with cohort characteristics essentially unchanged. Most commonly prescribed antibiotic regimen was Clarithromycin triple therapy followed by Bismuth quadruple therapy. Serology was the most common HP diagnostic test type |  |                                   |  |  |  |
| <b>15. SUBJECT TERMS</b><br><i>Helicobacter pylori</i> ( <i>H. pylori</i> ), gastric adenocarcinoma, gastric MALT lymphoma, gastric non-Hodgkin's lymphoma, atrophic gastritis, gastric ulcer, health disparities, antibiotic regimen, Hispanic, health insurance, ambulatory visit   |  |                                   |  |  |  |
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|                       |                         |                          |    |   |
|-----------------------|-------------------------|--------------------------|----|---|
| <b>a. REPORT</b><br>U | <b>b. ABSTRACT</b><br>U | <b>c. THIS PAGE</b><br>U | UU | <b>19b. TELEPHONE NUMBER</b> <i>(include area code)</i> |
|-----------------------|-------------------------|--------------------------|----|---|

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## TABLE OF CONTENTS

|  | <u>Page</u> |
|--|-------------|
| 1. Introduction  | 5           |
| 2. Keywords  | 5           |
| 3. Accomplishments                                       | 5           |
| 4. Impact  | 10          |
| 5. Changes/Problems                                      | 10          |
| 6. Products  | 11          |
| 7. Participants & Other Collaborating Organizations      | 14          |
| 8. Special Reporting Requirements                        | 15          |
| 9. Appendices  | 15          |
| a. Award Chart   |             |
| b. Quad Chart  |             |
| c. PI NIH Biosketch                                      |             |
| d. Abstract – Advancing the Science of Cancer in Latinos |             |

**1. INTRODUCTION:** *Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.*

My central research question is: what factors and their interactions contribute to disparities in testing and treatment of *H. pylori* infection and related gastric disorder (atrophic gastritis, gastric ulcer), and gastric cancer [GC; gastric adenocarcinoma (GCA), gastric non-Hodgkin's lymphoma (GL) and gastric MALT lymphoma (gMALT) diagnosis and treatment, among Latinos relative to non-Latinos? Study goals are to be met via a mixed methods approach of secondary data collection/analysis of electronic health records (EHR) from two affiliated but independent health systems (Quantitative); and semi-structured interviews of providers, administrators and a random sample of eligible patients in primary care, gastroenterology and oncology clinics on their experiences of facilitators of and barriers to care for these disorders (Qualitative).

**2. KEYWORDS:** *Provide a brief list of keywords (limit to 20 words).*

*Helicobacter pylori (H. pylori), gastric adenocarcinoma, gastric MALT lymphoma, gastric non-Hodgkin's lymphoma, atrophic gastritis, gastric ulcer, health disparities, antibiotic regimen, Hispanic/Latino, health insurance, ambulatory visit*

**3. ACCOMPLISHMENTS:**

**What were the major goals of the project?**

*List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.*

1. Gather and analyze electronic health record (EHR) data from two affiliated health systems (UTMed and UHS) – months 1-6 (gathered most updated version 05/2020; analysis ongoing 20%)
  - a. IRB approval – months 1-6 (met 08/2019); HRPO approval not applicable
  - b. Prepare and submit manuscript for publication – months 6-8 (in progress; 10%)
2. Compare data from 2 health systems – months 4-12 (in progress; 20%, see 1 above)
  - a. Prepare/present results at national conference – months 6-12 (met 09/2019, 02/2020)
  - b. Prepare and submit manuscript for publication – months 8-12 (in progress; 10%)
3. Design and translate interview guides for providers, administrators and patients – months 13-15 (initial guides approved by IRB 11/2019; translation and amendments in progress 75%)
  - a. HRPO approval – pending (report submitted 04/21/20)
4. Conduct semi-structured interviews with providers, administrators and patients from UTMEd/ UHS – months 15-24 (not started)
5. Analyze interviews for qualitative themes – months 20-28 (not started)
  - a. Prepare/present results at national conference – months 24-36 (not started)
  - b. Prepare and submit manuscript for publication – months 28-36 (not started)

**What was accomplished under these goals?**

1. Gather and analyze electronic health record (EHR) data from two affiliated health systems (UTMed and UHS) – aggregate data were extracted from a PCORNet common data model (CDM) dataset created and stored at UTHSA. Data was sent to the PI securely via REDCap SendIt as password-protected zipped Excel files. Several files were created encompassing cohort demographic data with diagnoses and accompanying dates, demographic information and visit type; antibiotic regimen prescribing and dispensing data; follow-ups for HP-positive individuals; referrals and completed appointments. Socioeconomic status data was available as of 05/2020. All datasets were updated/cleaned to most current state as of 01/2020 (UHS) and 04/2020 (UTMed); received by PI 05/13/20.
  - a. IRB approval (Expedited; PHI present in socioeconomic status and clinic notes data) – months 1-6 (met 08/2019); HRPO approval not applicable
  - b. Prepare and submit manuscript for publication – months 6-8 (in progress; 10%). Delays in data analysis occurred due to errors in data extraction/technical difficulties extracting data from two disparate EHR systems with different sets of record organizational software. Data were presented at conferences (see 2a below) as became available for analysis but organization and updating is ongoing.
2. Compare data from 2 health systems – analysis ongoing. Datasets were updated as of 05/2020.
  - a. Prepare/present results at national conference – months 6-12 (met; poster presented at 12<sup>th</sup> AACR Conference on the Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved Sept 20-23, 2019). Table 1 and Figure 1 below are from 02/2020 presentation (see Professional Development, p. 9). (**Table 1**) Cohort was predominantly female, Hispanic, seen at UHS, HP-positive (for non-cancer diagnoses), and insured by Carelink (local safety net) or other subsidized plans.

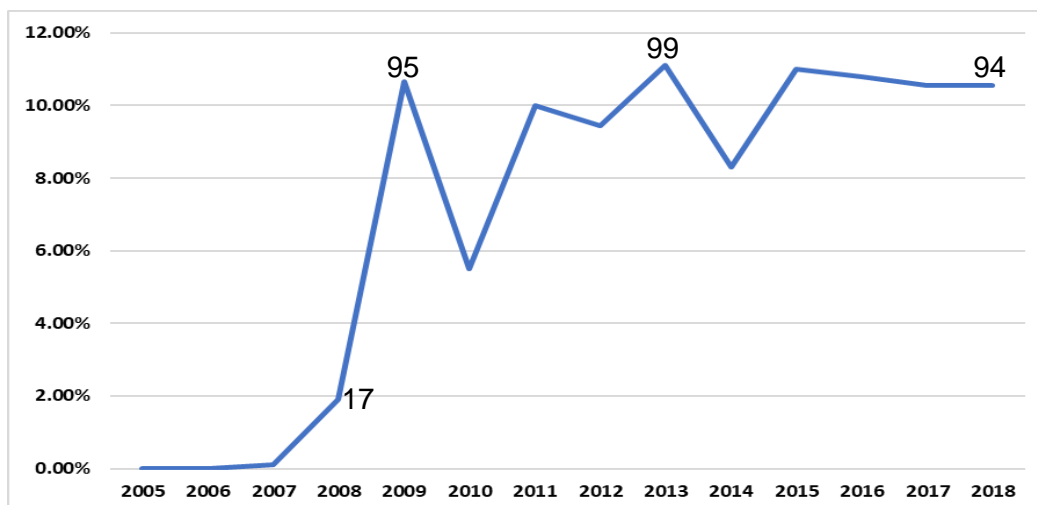
**Table 1. Cohort Demographics at First Visit 2005-2018**

| <i>Demographics by Cancer Diagnosis</i> |                                  |                             |                               |                      |                       |
|---|----------------------------------|-----------------------------|-------------------------------|----------------------|-----------------------|
|   | <i>No Cancer<br/>(N = 15646)</i> | <i>Cancer<br/>(N = 890)</i> | <i>Total<br/>(N = 16,536)</i> | <i>OR (95% CI)</i>   | <i>P Value</i>        |
| <b>AGE AT DIAGNOSIS</b>                 |                                  |                             |                               |                      |                       |
| Mean (SD)                               | 45.9 (14.3)                      | 58.2 (14.1)                 | 46.6 (14.5)                   | 1.03 (1.02-1.03)     | <0.001 <sup>***</sup> |
| <b>SEX</b>                              |                                  |                             |                               |                      |                       |
| Female                                  | 10,272 (65.7%)                   | 338 (38.0%)                 | 10,610 (64.2%)                |                      |                       |
| Male                                    | 5,374 (34.4%)                    | 552 (62.0%)                 | 5,926 (35.8%)                 | 2.7 (2.23-3.17)      | <0.001 <sup>***</sup> |
| <b>HISPANIC</b>                         |                                  |                             |                               |                      |                       |
| No                                      | 5,951 (38.0%)                    | 377 (42.4%)                 | 6,328 (38.3%)                 |                      |                       |
| Yes                                     | 9,695 (62.0%)                    | 513 (57.6%)                 | 10,208 (61.7%)                | 1.1 (0.96-1.37)      | 0.010 <sup>**</sup>   |
| <b>HP STATUS</b>                        |                                  |                             |                               |                      |                       |
| Negative                                | 4,514 (28.9%)                    | 886 (99.6%)                 | 5,400 (32.7%)                 |                      |                       |
| Positive                                | 11,132 (71.2%)                   | 4 (0.5%)                    | 11,136 (67.3%)                | 0.001 (<0.001-0.005) | <0.001 <sup>***</sup> |
| <b>FACILITY</b>                         |                                  |                             |                               |                      |                       |
| UHS                                     | 15,167 (96.9%)                   | 496 (55.7%)                 | 15,663 (94.7%)                |                      |                       |
| UTMed                                   | 479 (3.1%)                       | 394 (44.3%)                 | 873 (5.3%)                    | 10.0 (7.92-12.63)    | <0.001 <sup>***</sup> |
| <b>PRIMARY PAYER</b>                    |                                  |                             |                               |                      |                       |
| Missing                                 | 140                              | 58                          | 1,460                         |                      |                       |
| Private                                 | 1,924 (13.5%)                    | 144 (17.3%)                 | 2,068 (13.7%)                 | Ref                  |                       |
| Government <sup>#</sup>                 | 3,220 (22.6%)                    | 490 (58.9%)                 | 3,710 (24.6%)                 | 2.1 (1.60-2.70)      |                       |
| Self-pay                                | 1,393 (9.8%)                     | 61 (7.3%)                   | 1,454 (9.6%)                  | 0.8 (0.55-1.12)      |                       |
| Other <sup>■</sup>                      | 7,707 (54.1%)                    | 137 (16.5%)                 | 7,844 (52.0%)                 | 0.9 (0.66-1.19)      | <0.001 <sup>***</sup> |

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$

<sup>#</sup> Government = Medicaid/Medicare, TriCare/VA; <sup>■</sup> Other = Carelink (UHS income-based coverage)

**Figure 1. Proportion of Cancer Diagnosis by Year**



(**Figure 1**) There was an increasing trend in gastric cancer (all three diagnoses: GCA, GL, gMALT) over the period studied.

See Quad Chart (Appendices) for additional figure describing Hispanic/Latino cohort characteristics compared to non-Hispanic Whites.

b. Prepare and submit manuscript for publication – months 8-12 (in progress; 10%). See 1b above.

Following the most recent data update 05/2020, changes to the dataset included age range expanded to 18-88 and inclusion of all races. Preliminary analyses by Hispanic ethnicity showed cohort characteristics were essentially unchanged (**Table 2**):

**Table 2. Cohort Demographics at First Visit 2005-2019**

|                         | Demographics by Ethnicity |                    |                 | OR (95% CI)      | P-Value |
|-------------------------|---------------------------|--------------------|-----------------|------------------|---------|
|                         | Non-Hispanic (N=9699)     | Hispanic (N=12187) | Total (N=21886) |                  |         |
| <b>AGE AT DIAGNOSIS</b> |                           |                    |                 |                  |         |
| Mean (SD)               | 30.4 (15.6)               | 30.8 (14.4)        | 30.6 (15.0)     | 0.99 (0.99-1.00) | <0.001  |
| <b>SEX</b>              |                           |                    |                 |                  |         |
| Female                  | 5,876 (60.6%)             | 7,874 (64.6%)      | 13,750 (62.8%)  |                  |         |
| Male                    | 3,823 (39.4%)             | 4,313 (35.4%)      | 8,136 (37.2%)   | 1.13 (1.07-1.21) | <0.001  |
| <b>HP STATUS</b>        |                           |                    |                 |                  |         |
| Negative                | 4,415 (45.5%)             | 4,736 (38.9%)      | 9,151 (41.8%)   |                  |         |
| Positive                | 5,284 (54.5%)             | 7,451 (61.1%)      | 12,735 (58.2%)  | 0.83 (0.78-0.89) | <0.001  |
| <b>CANCER STATUS</b>    |                           |                    |                 |                  |         |
| Pre-Cancer              | 8,396 (86.6%)             | 10,924 (89.6%)     | 19,320 (88.3%)  |                  |         |
| Cancer                  | 1,303 (13.4%)             | 1,263 (10.4%)      | 2,566 (11.7%)   | 1.09 (0.98-1.22) | 0.121   |
| <b>FACILITY</b>         |                           |                    |                 |                  |         |
| UHS                     | 8,101 (83.5%)             | 10,740 (88.1%)     | 18,841 (86.1%)  |                  |         |
| UTMed                   | 1,598 (16.5%)             | 1,447 (11.9%)      | 3,045 (13.9%)   | 1.23 (1.11-1.36) | <0.001  |
| <b>ENCOUNTER TYPE</b>   |                           |                    |                 |                  |         |
| Other <sup>1</sup>      | 1,705 (17.6%)             | 1,940 (15.9%)      | 3,645 (16.6%)   |                  |         |
| Ambulatory              | 7,994 (82.4%)             | 10,427 (84.1%)     | 18,241 (83.4%)  | 1.02 (0.94-1.11) | 0.571   |
| <b>PRIMARY PAYER</b>    |                           |                    |                 |                  |         |
| Private Insurance       | 1,795 (18.5%)             | 1,709 (14.0%)      | 3,504 (16.0%)   | Reference        |         |
| CareLink                | 3,180 (32.8%)             | 5,300 (43.5%)      | 8,480 (38.8%)   | 0.68 (0.62-0.74) | <0.001  |
| Medicaid/Medicare/CHIP  | 2,687 (27.7%)             | 2,882 (23.7%)      | 5,569 (25.5%)   | 0.96 (0.87-1.05) | 0.350   |
| Other <sup>2</sup>      | 2,037 (21.0%)             | 2,296 (18.8%)      | 4,333 (19.8%)   | 1.05 (0.95-1.16) | 0.380   |

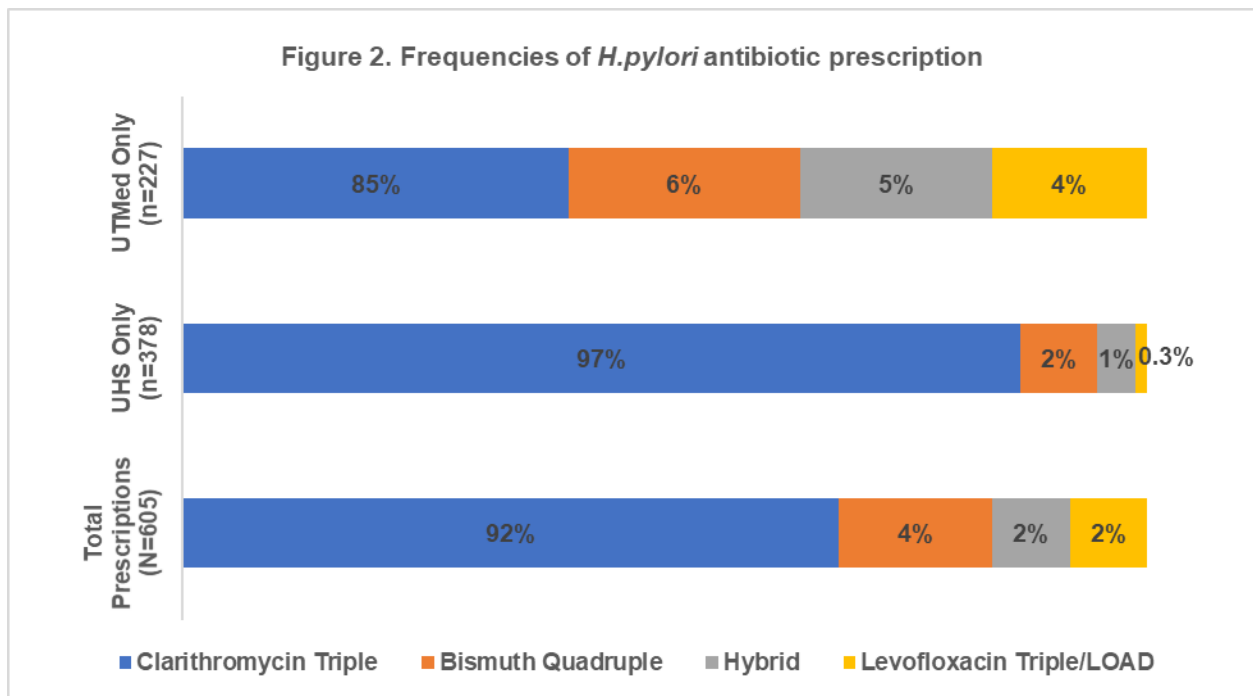
<sup>1</sup> Includes Emergency Dept., In-Patient, Other Ambulatory, Observation, and Other visits

<sup>2</sup> Includes Disability, Government, Military, Research, Self-Pay, Other and No Insurance options

Hispanics were significantly more female, HP-positive, diagnosed at UHS and had Carelink (safety net) health insurance.

Additional analyses of the cohort and smaller datasets showed (**Figure 2**) Clarithromycin Triple therapy was prescribed by the majority of providers for HP infection treatment at both sites. A small proportion of providers prescribed Bismuth Quadruple therapy, which is preferred due to potential high clarithromycin resistance and according to recent literature harmonizing European, Canadian and US guidelines. Local data on HP antibiotic resistance is unavailable.

The majority (>90%) of HP diagnostic tests conducted in the cohort at diagnosis were serological (HP anti-IgG, IgM, IgA; **data not shown**). This held true for follow-up tests conducted, although there was a small proportion of stool antigen tests (recommended test for HP eradication); these were only conducted at UTMed.



### **What opportunities for training and professional development has the project provided?**

**Training:** The PI completed two courses: Qualitative Methods (Fall 2019) and Qualitative Analysis (Spring 2019) at the UT-Houston School of Public Health San Antonio Regional Campus. She also developed a mentoring relationship with the Course Director for both courses (Sheryl McCurdy, PhD), and is looking at publishing opportunities for her final paper for the Qualitative Analysis Course.

The Research Coordinator (RC) began a one-on-one mentoring relationship with the PI when she started working on the project as an intern in June 2019. She was hired as a student associate in Sept 2019 and research area specialist in Dec 2019. In addition to weekly meetings on the study, career development mentoring included: 1) personal health and work/life balance recommendations; 2) a letter of recommendation from the PI to attend EXITO!, a week-long summer intensive for masters-level underrepresented minorities to foster interest and knowledge in, and facilitate enrollment in and completion of, terminal degrees in public health research. RC was accepted into the program, originally scheduled for Aug 2020 – may be rescheduled due to COVID.

**Professional development:** The PI attended a workshop on Qualitative Research Methods and Data Analysis (July 19-20, 2019) at the MD Anderson Cancer Center-Houston Comparative Effectiveness Research Training (CERTain) Program. She is part of a Gastric Cancer Working Group (June 2019-present), which submitted three grant proposals: 1) American Association for Cancer Research Stand Up 2 Cancer (Gastric Cancer) (Sept 2019 – rejected); 2) Cancer Prevention and Research Institute of Texas (CPRIT) Investigator-Initiated Research Award (Oct 2019 – rejected with summary statement); and 3) San Antonio Medical Foundation Collaborative Grant Program (June 2020; under review). She also presented preliminary data on Goals 1 and 2 at the Mays Cancer Center UTHSA Population Science and Prevention Interest Group monthly meeting on Nov 14, 2019. Feedback was provided by members on progress, presentation format and other potential avenues of research. She also presented a poster at the 2<sup>nd</sup> Biennial Advancing the Science of Cancer in Latinos Conference in San Antonio, TX (Feb 26-28, 2020). She was a Panelist on the National Center for Faculty Development and Diversity Utility Panel at the 1st Winter Faculty Development Workshop sponsored by the UTHSA School of Medicine on Feb 18, 2020.

### **How were the results disseminated to communities of interest?**

The PI presented preliminary data on Goals 1 and 2 as an invited Panelist at the Spotlight on Stomach Cancer Symposium on Oct 26, 2019 at the University of Arizona-Tucson. Symposium was sponsored by the non-profit organization No Stomach for Cancer (NSFC). Audience included gastric cancer patients and caregivers, clinicians, researchers, and NSFC officers and sponsors including pharmaceutical company representatives (i.e. Redhill Pharma, working on *H. pylori* antibiotic regimens).

### **What do you plan to do during the next reporting period to accomplish the goals?**

Goal 1: request periodic updates of the datasets (~yearly) from the data warehouse.  
Goal 2: construct a final baseline dataset and analyze it to describe the cohort; conduct longitudinal data analyses. Prepare/present results at a national conference and submit manuscripts for publication.  
Goal 3: Submit IRB amendments for provider, administrator and patient interview guides and surveys. Recruit providers and administrators; schedule and conduct semi-structured interviews. Obtain permission to contact eligible patients from participating providers. Begin patient interviews. Conduct qualitative analyses of all interviews throughout this process. Present preliminary results at a national conference.

4. **IMPACT:** Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:

**What was the impact on the development of the principal discipline(s) of the project?**

Nothing to report

**What was the impact on other disciplines?**

Nothing to report

**What was the impact on technology transfer?**

Nothing to report

**What was the impact on society beyond science and technology?**

Nothing to report

5. **CHANGES/PROBLEMS:** The PD/PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, "Nothing to Report," if applicable:

**Changes in approach and reasons for change** Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.

Nothing to report

**Actual or anticipated problems or delays and actions or plans to resolve them**

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Proposed research assistant was not available at study start. New intern started on project in June 2019, was hired as student associate at 24.5% effort (2.94 person-months) in Sept 2019 and started full-time at 12% effort (1.4 person-months) in Dec 2019. Effort increased to 40% as of June 1, 2020 (20% or 2.4 person-months covered by the grant)

Clinical Informatics Research Division team encountered technical difficulties with data extraction in early months of study, requiring multiple dataset revisions. Current cohort dataset (updated 05/2020) is clean, solutions to issues/errors with smaller datasets (prescribing, dispensing, referrals) have been pursued and successfully resolved. Organization and analysis are ongoing.

*Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.*

Career development courses initially proposed by PI for Year 1 were not available at time of award (registration deadline passed); PI took Aim 3 course on Qualitative Methods at the UT School of Public Health (UTSPH) as proposed. She also enrolled in subsequent Qualitative Analysis course to maximize benefit from same Course Director/ informal mentor. Overall effect on budget was ~\$5000 increase over proposed (see Quad Chart in appendices). Planned courses for Fall 2020 have been adjusted to offset costs – free monthly seminar substitutes have been found for Responsible Conduct of Research and Grant-writing. Two-semester Patient Centered Outcomes Research Methods and Biostatistics courses (12 credit hours total) at UTHSA will be replaced with 1-semester (3 credit hour) Advanced Health Services Research seminar course at UTSPH. An Independent Study on biostatistical software (STATA) applications to the study is also being considered.

**Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents**

*Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.*

None – no human subjects were enrolled during this reporting period. Enrollment will begin in Year 2.

**Significant changes in use or care of vertebrate animals**

Not applicable

**Significant changes in use of biohazards and/or select agents**

Not applicable

**6. PRODUCTS:** *List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state “Nothing to Report.”*

• **Publications, conference papers, and presentations**

*Report only the major publication(s) resulting from the work under this award.*

**Journal publications.** *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume; year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

**Long Parma, D;** Munoz, E; Schmidt, S; Morales, AB; Ramirez, AG. Gastric cancer burden and trends in Latino and non-Hispanic White populations in South Texas, Texas, and the United States, 2000-2017. *Journal TBD*; 2020; manuscript in development; acknowledgment of federal support (Yes).

**Long Parma, D;** Williams, MH; Ramirez, AG; Arora, SP. Clinicopathologic differences and mortality among Latinos and Non-Hispanic Whites with gastric adenocarcinoma at a majority minority cancer center in South Texas. *J Gastroint Onc*; 2020; manuscript in development; acknowledgment of federal support (Yes).

**Books or other non-periodical, one-time publications.** *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

None

**Other publications, conference papers and presentations.** *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (\*) if presentation produced a manuscript.*

**Long Parma DA,** Moffett E, Morales A, Ramirez AG. Abstract A107: Disparities in gastric adenocarcinoma and its precursors in South Texas: a secondary analysis of electronic health data from two affiliated institutions. AACR; 2020 (Cancer Epidemiology Biomarkers & Prevention vol. XX, no. X suppl). *In Press*. Poster presented at the 12<sup>th</sup> AACR Conference on the Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved Sept 20-23, 2019.

- **Website(s) or other Internet site(s)**

*List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.*

None

- **Technologies or techniques**

*Identify technologies or techniques that resulted from the research activities. Describe the technologies or techniques were shared.*

None

- **Inventions, patent applications, and/or licenses**

*Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.*

None

- **Other Products**

*Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment and /or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:*

- *data or databases;*
- *physical collections;*
- *audio or video products;*
- *software;*
- *models;*
- *educational aids or curricula;*
- *instruments or equipment;*
- *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
- *clinical interventions;*
- *new business creation; and*
- *other.*

Databases/datasets – cohort dataset of UTMEd/UHS patients with diagnoses of *H. pylori* (HP) infection, atrophic gastritis, gastric ulcer, gastric adenocarcinoma, gastric (non-Hodgkin’s) lymphoma, gastric MALT lymphoma from 2007-2020. Ancillary datasets focused on antibiotic prescription and dispensing for HP-positive individuals; follow-ups for HP-positive individuals including repeat HP testing; referrals to specialty services and encounters/completed appointments; census tract/block-level socioeconomic status data for ~65% of the cohort

## 7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

### What individuals have worked on the project?

Name: Dorothy Long Parma, MD, MPH

Project Role: PI

Researcher Identifier: ORCID ID 0000-0001-8059-3392

Nearest person month: 9

Contribution to project: Supervised data extraction, cleaning, organization and analyses, seminar/poster preparation and presentation; wrote manuscripts/abstracts

Funding support: Institutional (3 person-months)

Name: Ariel B. Morales, BS

Project Role: Research Coordinator

Researcher Identifier: ORCID ID 0000-0002-6448-8450

Nearest person month: 3 (June-Nov 2019 student associate); 1.4 (Dec 2019-May 2020 employee)

Contribution to project: organized, cleaned and analyzed data, prepared graphics and text for posters, contributed to abstracts

Funding support: Institutional (9; 10.6 person-months)

**Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?**

R01 075936 Parra-Medina (PI) 04/01/2014-03/31/2019 6.0 calendar  
Eunice Kennedy Shriver National Institute of Child Health and Human Development  
\$1,334,243  
Pediatric Obesity Management (POM) Intervention Trial for Hispanic Families  
Role: Measurement Coordinator. Previously active grant closed. Role was at 1.5 calendar during no-cost extension thru 12/31/19. No-cost extension period ended 03/31/20.

**What other organizations were involved as partners?**

Nothing to report

**8. SPECIAL REPORTING REQUIREMENTS**

**QUAD CHARTS:** see Appendices.

- 9. APPENDICES:** *Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.*

# Disparities in gastric cancer and its precursors in South Texas: a secondary analysis of electronic health data

Dorothy Long Parma<sup>\*</sup>, Eric E. Moffett, Ariel Morales, Amelie G. Ramirez

*Department of Population Health Sciences, University of Texas Health Science Center at San Antonio, San Antonio, TX, USA.*

**Background:** Gastric cancer (GC) disparities in Latinos vs non-Hispanic whites (NHWs), particularly in South Texas, may be linked to differences in diagnosis and management of precursor conditions, including chronic *Helicobacter pylori* infection (HP), gastric ulcer (GU) and atrophic gastritis (AG). This study aimed to identify differences among Latino and NHW patients at two affiliated health systems.

**Methods:** Aggregate data were compiled from an electronic health record dataset. Diagnoses included precursor conditions and gastric adenocarcinoma (GCA); non-Hodgkin’s lymphoma (GL); and mucosa lymphoid tissue (MALT) lymphoma. Rate ratios (RR) were analyzed using STATA v. 15.1 (StataCorp, 2017). Odds ratios (OR) of all GCs combined were determined by logistic regression by covariates age, gender, ethnicity, site and insurance type using SAS.

**Results:** Over 845,000 records, 54.6% female, were analyzed. Over 60% of all diagnoses were HP-positive. There were no site differences in diagnosis rates. Latinos had  $\geq 4$  times higher rates than NHWs ( $p < 0.05$ ), except for GU (NHW RR= 1.78 at one site); and MALT (no ethnic difference). Latinas were twice as likely to have GCA (RR range 1.87-2.20;  $p < 0.001$ ) as NHW women, and almost three times as likely to have HP-positive AG (2.47-2.95;  $p \leq 0.03$ ). Predictors of all GCs combined included age (OR=1.04), male gender (2.78), site (15.99) and insurance (Medicare, Medicaid, and VA; 1.93) (all  $p \leq 0.002$ ), but not ethnicity. UTMed providers prescribed more bismuth quadruple *H. pylori* therapy (RR 5.09).

**Conclusions:** HP rates were higher than national and state estimates. The roles of ethnicity, female gender and socioeconomic status require further exploration.

|   |   |
|---|---|
| <b>Presenter(s) Name:</b>                             | Dorothy Long Parma  |
| <b>Presenter(s) Email:</b>                            | <a href="mailto:longparma@uthscsa.edu">longparma@uthscsa.edu</a>  |
| <b>Corresponding Author:</b>                          | Dorothy Long Parma  |
| <b>Corresponding Author Email:</b>                    | <a href="mailto:longparma@uthscsa.edu">longparma@uthscsa.edu</a>  |
| <b>Is the presenter an early career investigator?</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |
| <b>Abstract theme:</b>                                | <input type="checkbox"/> Advances in Biology & Treatment of Cancer<br><input checked="" type="checkbox"/> Cancer Epidemiology & Prevention<br><input type="checkbox"/> Engaging Latinos in Research Across the Cancer Continuum<br><input type="checkbox"/> Living With & Beyond Cancer: Taking Action to Improve Outcomes<br><input type="checkbox"/> Other. Please specify: |

**Please submit as a Microsoft Word Document (.doc) via email to [LatinoCancer@uthscsa.edu](mailto:LatinoCancer@uthscsa.edu) no later than 11:59PM CST on Friday October 18, 2019.**