**Head and neck cancer in Pan-American notable people: A international survey**.

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**SUPPLEMENTARY FILES**

**Supplementary Table 1:** Search strategies in the databases and grey literature

|  |  |  |
| --- | --- | --- |
| Database | Search strategySearch data: April 19th, 2022Update: May 27th 2023 | Results |
| PUBMED | (“famous persons”[MeSH Terms] OR “famous persons” OR “famous person” OR “famous people” OR notorious OR celebrity OR celebrities OR notable OR “well-known” OR “well known” OR distinguished OR remarkable OR historical OR renowned) **AND** (“Latin America”[MeSH Terms] “Latin America” OR “Latin American” OR “Pan America” OR “Pan American” OR “Hispanic or Latino”[MeSH Terms] OR Hispanic OR Hispanics OR Latino OR Latinos OR Latina OR Latinas OR American) **AND** (neoplasms[MeSH Terms] OR neoplasms OR neoplasm OR cancer OR neoplasia OR neoplasias OR malignancy OR malignancies OR malignant OR tumor OR tumors OR tumour OR tumours OR cancer OR cancers OR carcinoma OR carcinomas OR sarcoma OR sarcomas OR lymphoma OR lymphomas OR melanoma OR melanomas) **AND** (mouth[MeSH Terms] OR mouth OR oral OR lip OR lips OR palate OR “buccal mucosa” OR “floor of mouth” OR “mouth floor” OR gingiva OR oropharynx[MeSH Terms] OR oropharynx OR oropharynxs OR oropharyngeal OR “head and neck” OR thyroid OR larynx OR pharynx OR nasal OR nasopharynx OR throat OR esophagus) | 562 |
| SCOPUS | TITLE-ABS-KEY(“famous persons” OR “famous person” OR “famous people” OR notorious OR celebrity OR celebrities OR notable OR “well-known” OR “well known” OR distinguished OR remarkable OR historical OR renowned) **AND** TITLE-ABS-KEY(“Latin America” OR “Latin American” OR “Pan America” OR “Pan American” OR Hispanic OR Hispanics OR Latino OR Latinos OR Latina OR Latinas OR American) **AND** TITLE-ABS-KEY(neoplasms OR neoplasm OR cancer OR neoplasia OR neoplasias OR malignancy OR malignancies OR malignant OR tumor OR tumors OR tumour OR tumours OR cancer OR cancers OR carcinoma OR carcinomas OR sarcoma OR sarcomas OR lymphoma OR lymphomas OR melanoma OR melanomas) **AND** TITLE-ABS-KEY(mouth OR oral OR lip OR lips OR palate OR “buccal mucosa” OR “floor of mouth” OR “mouth floor” OR gingiva OR oropharynx OR oropharynxs OR oropharyngeal OR “head and neck” OR thyroid OR larynx OR pharynx OR nasal OR nasopharynx OR throat OR esophagus) | 772 |
| EMBASE | ('famous persons'/de OR 'famous person'/de OR 'famous people'/de OR notorious OR 'celebrity'/de OR 'celebrities'/de OR notable OR 'well-known' OR 'well known' OR distinguished OR remarkable OR historical OR renowned) AND ('latin america'/de OR 'latin american'/de OR 'pan america' OR 'pan american' OR 'hispanic'/de OR 'hispanics'/de OR 'latino'/de OR latinos OR 'latina'/de OR latinas OR 'american'/de) AND ('neoplasms'/de OR 'neoplasm'/de OR 'neoplasia'/de OR neoplasias OR 'malignancy'/de OR 'malignancies'/de OR malignant OR 'tumor'/de OR 'tumors'/de OR 'tumour'/de OR tumours OR 'cancer'/de OR 'cancers'/de OR 'carcinoma'/de OR carcinomas OR 'sarcoma'/de OR sarcomas OR 'lymphoma'/de OR 'lymphomas'/de OR 'melanoma'/de OR melanomas) AND ('mouth'/de OR oral OR 'lip'/de OR 'lips'/de OR 'palate'/de OR 'buccal mucosa'/de OR 'floor of mouth' OR 'mouth floor'/de OR 'gingiva'/de OR 'oropharynx'/de OR oropharynxs OR oropharyngeal OR 'head and neck' OR 'thyroid'/de OR 'larynx'/de OR 'pharynx'/de OR nasal OR 'nasopharynx'/de OR 'throat'/de OR 'esophagus'/de) | 201 |
| Web of Science | TS=(“famous persons” OR “famous person” OR “famous people” OR notorious OR celebrity OR celebrities OR notable OR “well-known” OR “well known” OR distinguished OR remarkable OR historical OR renowned) **AND** TS=(“Latin America” OR “Latin American” OR “Pan America” OR “Pan American” OR Hispanic OR Hispanics OR Latino OR Latinos OR Latina OR Latinas OR American) **AND** TS=(neoplasms OR neoplasm OR cancer OR neoplasia OR neoplasias OR malignancy OR malignancies OR malignant OR tumor OR tumors OR tumour OR tumours OR cancer OR cancers OR carcinoma OR carcinomas OR sarcoma OR sarcomas OR lymphoma OR lymphomas OR melanoma OR melanomas) **AND** TS=(mouth OR oral OR lip OR lips OR palate OR “buccal mucosa” OR “floor of mouth” OR “mouth floor” OR gingiva OR oropharynx OR oropharynxs OR oropharyngeal OR “head and neck” OR thyroid OR larynx OR pharynx OR nasal OR nasopharynx OR throat OR esophagus) | 419 |
| BVS (LILACS, IBECS, BBO-ODONTOLOGIA, PAHO-IRIS) | (“famous persons” OR “pessoas famosas” OR “personajes”) **AND** (“head and neck neoplasms” OR “neoplasias de cabeça e pescoço” OR “neoplasias de cabeza y cuello”) | 18 |
| **LITERATURA CINZENTA** |
| GOOGLE SCHOLAR | ("oral cancer" OR “head and neck cancer” OR “oropharyngeal cancer”) **AND** ("celebrities") | 100 |
| BIBLIOTECA DIGITAL DE TESES E DISSERTAÇÃO (BDTD) | (famosos) **AND** (câncer) | 3 |
| ProQuest  | TI,AB(“famous persons” OR “famous person” OR “famous people” OR notorious OR celebrity OR celebrities OR notable OR “well-known” OR “well known” OR distinguished OR remarkable OR historical OR renowned) **AND** TI,AB(“Latin America” OR “Latin American” OR “Pan America” OR “Pan American” OR Hispanic OR Hispanics OR Latino OR Latinos OR Latina OR Latinas OR American) **AND** TI,AB(neoplasms OR neoplasm OR cancer OR neoplasia OR neoplasias OR malignancy OR malignancies OR malignant OR tumor OR tumors OR tumour OR tumours OR cancer OR cancers OR carcinoma OR carcinomas OR sarcoma OR sarcomas OR lymphoma OR lymphomas OR melanoma OR melanomas) **AND** TI,AB(mouth OR oral OR lip OR lips OR palate OR “buccal mucosa” OR “floor of mouth” OR “mouth floor” OR gingiva OR oropharynx OR oropharynxs OR oropharyngeal OR “head and neck” OR larynx OR pharynx OR nasal OR nasopharynx OR throat) | 345 |

**Supplementary References 1.** The list of publications reporting Pan-American notable people.

Folz BJ, Ferlito A, Weir N, Pratt LW, Rinaldo A, Werner JA. A historical review of head and neck cancer in celebrities. J Laryngol Otol. 2007;121(6):511-520. doi:10.1017/S0022215106004208

Ehrhardt JD, O’Leary JP. The Clandestine Operations Performed on President Grover Cleveland and the Rationale for Surgical Secrecy. Am Surg. 2018;84(9):1484-1488. doi:10.1177/000313481808400955

Cashman EC, Timon C. Otolaryngology and the American Presidency: A Medical Legacy. ORL. 2011;73(2):105-109. doi:10.1159/000324649

Renehan A, Lowry JC. The oral tumours of two American presidents: what if they were alive today? J R Soc Med. 1995;88(7):377-383. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1295266/. Accessed May 16, 2022.

Spiro RH. Verrucous carcinoma, then and now. Am J Surg. 1998;176(5):393-397. doi:10.1016/S0002-9610(98)00232-3

Gallegos-Hernández JF. Head &amp; neck cancer. Its impact on the history of mankind. Gac M�xico. 2020;156(2):103-108. doi:10.24875/GMM.M20000350

Inchingolo F, Santacroce L, Ballini A, et al. Oral Cancer: A Historical Review. Int J Environ Res Public Health. 2020;17(9):3168. doi:10.3390/ijerph17093168

Teymoortash A, Silver CE, Rinaldo A, Cardesa A, Folz BJ, Ferlito A. Verrucous carcinoma: a retrospective diagnosis in three historic patients. Eur Arch Oto-Rhino-Laryngology. 2014;271(4):631-633. doi:10.1007/s00405-013-2803-7

Gallegos-Hernández JF. Aspectos históricos del cáncer de cabeza y cuello. Celebridades y conciencia de enfermedad. Gac Mex Oncol. 2021;20(3):94-100. doi:10.24875/j.gamo.21000055

A historical review of head and neck cancer in celebrities. J Laryngol Otol. 2008;122(4):432-433. doi:10.1017/S0022215107008213

Patton LL. Oral cancer early detection: What will it take? Oral Surg Oral Med Oral Pathol Oral Radiol. 2018;126(1):1-3. doi:10.1016/j.oooo.2018.03.018

Blum A. Tobacco in sport: an endless addiction? Tob Control. 2005;14(1):1-2. doi:10.1136/tc.2004.010728

THE GIFT OF HOPE: [FIVE STAR LIFT Edition] - ProQuest. https://www.proquest.com/newspapers/gift-hope/docview/305090849/se-2?accountid=8113. Published October 7, 1995.

Ravo N. Robert Polhill, 65, Lebanon Hostage for 3 Years: [Obituary (Obit)] - ProQuest. https://www.proquest.com/newspapers/robert-polhill-65-lebanon-hostage-3-years/docview/431214438/se-2?accountid=8113. Published July 3, 1999.

PAID OBITUARIES: [Broward Metro Edition 1] - ProQuest. https://www.proquest.com/newspapers/paid-obituaries/docview/387934673/se-2?accountid=8113. Published April 18, 2002.

IMHOLTE J. Anti-spit tobacco crusader Bill Tuttle. Tob Control. 1998;7(4):443-444. doi:10.1136/tc.7.4.443

SPORTSWIRE: [EVENING Edition] - ProQuest. https://www.proquest.com/newspapers/sportswire/docview/272399454/se-2?accountid=8113. Published March 16, 1989.

Robert Polhill, 65, was hostage in Lebanon: [All Edition] - ProQuest. https://www.proquest.com/newspapers/robert-polhill-65-was-hostage-lebanon/docview/242250512/se-2?accountid=8113. Published July 3, 1999.

Konik M. HOLLYWOOD HAUNTS Stargazing From the Streets Tours focus on celebrity homes, and one features sites of sin and scandal: [ALL EDITIONS] - ProQuest. https://www.proquest.com/newspapers/hollywood-haunts-stargazing-streets-tours-focus/docview/278770620/se-2?accountid=8113. Published June 12, 1994.

Reports S. Deaths: [FINAL HOME Edition] - ProQuest. https://www.proquest.com/newspapers/deaths/docview/400075616/se-2?accountid=8113. Published December 23, 2006.

Owens AM. Alternative treatment facility has fans and detractors: The American Biologics clinic has treated celebrities and the religious: [National Edition] - ProQuest. https://www.proquest.com/newspapers/alternative-treatment-facility-has-fans/docview/329456443/se-2?accountid=8113. Published March 25, 1999.

3An argument for Christopher Hitchens - ProQuest. https://www.proquest.com/newspapers/argument-christopher-hitchens/docview/895114465/se-2?accountid=8113. Published October 1, 2011.

Bikhazi NB, Kramer AM, Spiegel JH, Singer MI. “Babe” Ruth’s Illness and Its Impact on Medical History. Laryngoscope. 1999;109(1):1-2. doi:10.1097/00005537-199901000-00001

Maloney WJ, Weinberg MA. A Comprehensive Analysis of Babe Ruth’s Head and Neck Cancer. J Am Dent Assoc. 2008;139(7):926-932. doi:10.14219/jada.archive.2008.0279

Ayers JW, Althouse BM, Noar SM, Cohen JE. Do celebrity cancer diagnoses promote primary cancer prevention? Prev Med (Baltim). 2014;58(1):81-84. doi:10.1016/j.ypmed.2013.11.007

**Supplementary Table 2.** Results from survey responses (n = 25) regarding head and neck cancer characteristics of the Pan-American notable people.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **N** | **Patients name** | **Country** | **Occupation** | **Approximated year of cancer diagnoses** | **Type of cancer** | **Anatomical site of cancer\*** | **Outcome after diagnosis and/or treatment** |
| 1 | Luiz Inácio Lula da Silva  | Brazil | President | 2010 | Carcinoma | Larynx | After treatment, the disease was controlled  |
| 2 | Heloisa Pericé | Brazil | Artist | 2018 | Adenocarcinoma | Other⸹ | After treatment, the disease was controlled  |
| 3 | Branco Melo | Brazil | Artist | 2019 | Carcinoma | Hypopharynx | After treatment, the disease was controlled |
| 4 | Guilherme Lemos | Brazil | Researcher, artist | 2015 | Carcinoma | Oropharynx HPV-mediated (p+16) | After treatment, the disease was controlled |
| 5 | René Orlando Houseman  | Argentina | Athlete | 2018 | Carcinoma | Lip and oral cavity | Death  |
| 6 | Juan Jose Antonio Castelli | Argentina | President | 1810 | Carcinoma | Lip and oral cavity | Death  |
| 7 | Gustavo Garzón  | Argentina | Artist | 2012 | Carcinoma | Lip and oral cavity | After treatment, the disease was controlled |
| 8 | Michael Douglas | United States  | Actor | - | Carcinoma | Oropharynx HPV-mediated (p+16) | After treatment, the disease was controlled |
| 9 | Grant Achatz | United States  | Chef | - | Carcinoma | Lip and oral cavity | - |
| 10 | Stanley Tucci | United States | Artist | - | Carcinoma  | Lip and oral cavity | After treatment, the disease was controlled |
| 11 | Val Kilmer | United States | Actor | - | Carcinoma  | Oropharynx HPV-mediated (p+16) | Does not know |
| 12 | Ebert | United States | Writer/Author | - | Carcinoma | Does not know | Death  |
| 13 | Roberto D’Aubison  | El Salvador | Politician | - | Carcinoma | Larynx | Death  |
| 14 | Irma Lozano | Mexico | Artist | - | Carcinoma | Major salivary glands | Death  |
| 15 | Lázaro Cárdenas | Mexico | President | 1970 | Melanoma | Other~ | After treatment, the disease recurred (disease persisted)  |
| 16 | Pablo Krögh | Chile | Artist | 2012 | Carcinoma | Lip and oral cavity | Death |
| 17 | Alberto Fujimori | Peru | President | 1997 | Carcinoma | Lip and oral cavity | After treatment, the disease recurred (disease persisted)  |
| 18 | Martha Liliana Ruiz  | Colombia | Artist | 2021 | Carcinoma | Lip and oral cavity | After treatment, the disease was controlled |

\* According to 8th Edition AJCC Cancer Staging Manual.

⸹ Minor salivary gland oral cavity

~ Skin

**Supplementary Table 3.** Pan-American notable people diagnosed with head and neck cancer collected from the structured literature review.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **N** | **Name** | **Gender** | **Occupation** | **Country** | **Anatomical site of cancer\*** | **Year of cancer diagnostic** | **Age** | **Signs and symptoms before diagnostic** | **Risk factor** |
| 1 | Ulysses Simpson Grant | M | President | United States  | Oral cancer  | 1884 | 62 | OdynophagiaNeck node | Smoked cigars and alcohol consumption  |
|  |  |  |  |  |  |  |  |  |  |
| 2 | Grover Cleveland | M | President | United States  | Oral cancer | 1893 | 56 | Ulcer on his left hard palate | Smoked cigars and used chewing tobacco |
| 3 | Babe Ruth | M | Baseball player | United States  | Nasopharyngeal cancer | 1946 | 51 | Hoarseness, and left-sided retro-orbital pain | Heavy alcohol and tobacco consumption |
| 4 | Jack Klugman | M | Actor | United States  | Laryngeal cancer  | - | - | - | - |
| 5 | Ed Sullivan | M | Television host | United States  | Oropharyngeal cancer | - | - | - | - |
| 6 | Sammy Davis Jr | M | Singer, dancer, and actor | United States  | Laryngeal cancer | - | - | - | Smoking and alcohol intake |
| 7 | Mary Esther Wells | F | Singer | United States  | Laryngeal cancer | - | - | - | Smoking |
| 8 | Robert B. Polhill | M | Business professor | United States  | Throat cancer | 1990 | - | - | - |
| 9 | Lana Turner | F | Actress and model | United States  | Throat cancer | - | - | - | - |
| 10 | Bill Tuttle | M | Baseball player | United States  | Oral cancer | - | - | Mouth soreSwelling in his cheek | Smokeless tobacco |
| 11 | Brett Butler | M | Baseball player | United States  | Throat cancer | - | - |  |  |
| 12 | George Harrison | M | The Beatles’ lead guitarist | United States  | Throat cancer | - | - | - | - |
| 13 | Edie van Halen | M | Rock musician  | United States  | Tongue cancer | - | - | - | - |
| 14 | Michael Douglas | M | Actor and producer | United States  | Oropharyngeal cancer | - | - | - | - |
| 15 | Rusell Means | M | Actor | United States  | Oral cancer | - | - | - | - |
| 16 | Val Kilmer | M | Actor | United States  | Laryngeal cancer | - | - | - | - |
| 17 | William Hanna | M | Animator and cartoonist | United States  | Laryngeal cancer | - | - | - | - |
| 18 | Kirk Collins | M | Football player | United States  | Throat cancer | - | - | - | - |
| 19 | Jon M. Huntsman | M | Billionaire industrialist  | United States  | Oral cancer  | - | - | - | - |
| 20 | Mike Evans (Lionel Jefferson)  | M | Actor | United States  | Throat cancer  | - | - | - | - |
| 21 | Thomas K. Washington | M | Businessman and spokesperson against racial prejudice | United States | Throat cancer | - | - | - | - |
| 22 | Khaterine Hepburn | F | Actress | United States  | Oropharyngeal cancer  | - | - | - | - |
| 23 | Jonh Steele  | M | Paratrooper | United States  | Laryngeal cancer  | - | - | - | - |
| 24 | Roger Ebert  | M | Film reviewer | United States  | Salivary gland cancer | - | - | - | - |
| 25 | Dexter Keith Gordon | M | Jazz musician  | United States  | Laryngeal cancer  | - | - | - | Smoking and alcohol intake  |
| 26 | Amanda Blake | F | Actress  | United States  | Throat cancer  | - | - | - | - |
| 27 | Lon Chaney  | M | Actor | United States  | Throat cancer | - | - | - | - |
| 28 | Lula Silva  | M | President | Brazil  | Laryngeal cancer  | 2011 | - |  | Smoking  |
| 29 | René Houseman | M | Footballer | Argentina | Tongue cancer | - | - | **-** | - |

\*According source

**Supplementary Table 4**. List of professionals

|  |  |  |
| --- | --- | --- |
| **Country**  | **Professional** | **Affiliation**  |
| México | Dr. Adalberto Mosqueda Taylor | Health Care Department, Autonomous Metropolitan University, Mexico City, Mexico. |
| Dra. Alicia Rumayor | Faculty of Dentistry, Autonomous University of Coahuila, Mexico City, Mexico. |
| Dra. Gabriela Anaya Saavedra  | Health Care Department, Autonomous Metropolitan University, Mexico City, Mexico. |
| Dra. Saray Aranda Romo | Diagnostic Clinic, Facultad de Estomatología, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico. |
| Argentina | Dr. Gerardo M. Gilligan | Department of Oral Medicine, Facultad de Odontología, Universidad Nacional de Córdoba, Córdoba, Argentina. |
| Dr. Eduardo David Piemonte  | Department of Oral Medicine, Facultad de Odontología, Universidad Nacional de Córdoba, Córdoba, Argentina. |
| Chile  | Dra. Ana Verónica Ortega Pinto  | Faculty of Dentistry, University of Chile, Santiago, Chile. |
| Dr. Wilfredo Alejandro González-Arriagada | Service of Oral and Maxillofacial Pathology, School of Dentistry, Universidad de los Andes, Santiago, Chile. |
| Colombia | Dra. Leonor Victoria González Pérez | Laboratory of Histopathology, Faculty of Dentistry, University of Antioquia. Medellín, Colombia. |
| Dr. Carlos Alberto Gaidos Nates | President Colombian Association of Oral Pathology ACPO, Bogota, Colombia.  |
| El Salvador | Dra. Florence Juana Maria Cuadra Zelaya  | Department of Oral Pathology, Faculty of Dentistry, University of El Salvador, San Salvador, El Salvador. |
| Dr. Luis Chicas | Oncology Department, Rosales National Hospital, San Salvador, El Salvador. |
| Perú | Dr. Wilson Delgado-Azañero  | Department of Oral Pathology, Oral Medicine and Oral Surgery, School of Dentistry, Universidad Peruana Cayetano Heredia, Lima, Peru. |
| Dra. Sonia Sacsaquispe Contreras | Academic Department of Medicine and Buccomaxillofacial Surgery, Faculty of Stomatology, Universidad Peruana Cayetano Heredia, Lima, Peru. |
| United States  | Dr. Alessandro Villa | Oral Medicine, Oral Oncology and Dentistry, Miami Cancer Institute, Baptist Health South Florida, Miami, USA. The Herbert Wertheim College of Medicine, Florida International University, Miami, USA.Department of Orofacial Sciences, University of California San Francisco, San Francisco, USA. |
| Vidya Sankar | Department of Diagnostic Sciences, Tufts School of Dental Medicine, Boston, USA |
| Canada  | Dr. Marco A. O. Magalhaes | Oral Pathology and Oral Medicine, Faculty of Dentistry, University of Toronto, Toronto, Ontario, Canada.Laboratory Medicine and Pathobiology, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada.Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada. |
| Brazil | Dr. Luiz Paulo Kowalski  | Department of Head and Neck Surgery and Otorhinolaryngology, A.C. Camargo Cancer Center, São Paulo, Brazil.Head and Neck Surgery Department and LIM 28, University of São Paulo Medical School, São Paulo, Brazil. |
| Costa Rica | Spec. Roberto Gerber Mora | Oral Diagnosis Department, Semiology and Oral Pathology Areas, Piracicaba Dental School, University of Campinas (UNICAMP), Piracicaba, São Paulo, BrazilOroclínica, San José, Costa Rica. |
| Ecuador  | Osmani Fabricio Guevara Cabrera | Oral Diagnosis Department, Semiology and Oral Pathology Areas, Piracicaba Dental School, University of Campinas (UNICAMP), Piracicaba, São Paulo, Brazil |
| Guatemala  | Dra. Elisa Gabriela Contreras Vidaurre | Professor, School of Dentistry, Universidad Francisco Marroquín, Guatemala  |
|
| Honduras | Dra. Claudette Arambú | Oral Pathology and Diagnostic Means, Universidad Católica de Honduras Tegucigalpa, Honduras, |
| Paraguay | Dra. Karen Patricia Dominguez Gallagher | Oral Diagnosis Department, Semiology and Oral Pathology Areas, Piracicaba Dental School, University of Campinas (UNICAMP), Piracicaba, São Paulo, BrazilPracticing Graduate Professor, School of Dentistry, National University of Asunción (UNA), Asunción, Paraguay |
| Uruguay | Dra. Susana Vázquez | President of Sociedad Uruguaya de Patología Estomatológica (SUPE) |
| Venezuela (República bolivariana de Venezuela) | Dra. Maria Villarroel-Dorrego  | Laboratory of Oral Histopathology, Universidad Central de Venezuela, Caracas, Venezuela. |