

Public Health Reports

An innovative United States-Mexico community outreach initiative for Hispanics and Latinos in the United States: a collaborative public health network

Journal:	<i>Public Health Reports</i>
Manuscript ID	PHR-20-0008-.R2
Manuscript Type:	Case Study
Date Submitted by the Author:	12-Oct-2020
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Keywords:	Health Promotion, Hispanic or Latino, Immigrants, Minority Health, Public Health Practice, Health Equity, Partnerships
Abstract:	Collaborative partnerships are a useful approach to improve health conditions of disadvantaged populations. The Ventanillas de Salud (VDS) or "Windows for Health" and the Mobile Health Units (MHU) are a collaborative initiative of the Mexican Government, and United States (US) public health organizations to improve the health of Mexicans and other Hispanics and underserved populations across the United States. From 2013-2017 the VDS served 7.7 million individuals at consulate locations (an average of 1.5 million individuals a year), while the MHU served 70,000 individuals since 2016. The authors present a series of 3 exemplary projects demonstrating the related community outreach efforts and subsequent impact to improve the health of Hispanics in the United States. Exemplar 1 represents a collaboration between the VDS and the Centers for Disease Control and Prevention (CDC) to address occupational health inequities among Hispanics. Exemplar 2 describes a

	<p>collaboration between VDS and CDC to better inform Hispanics on Zika virus infection and health education. Exemplar 3 exemplifies the collaboration between MHU and the University of Arizona to provide basic health services to Hispanic communities in Pima and Maricopa Counties, Arizona.</p> <p>The VDS/MHU model is a promising intervention using an innovative collaborative approach and should be further assessed to better understand its impact in the locations where it is implemented on both the US Hispanic population (both foreign born and US born) and the public at large.</p>





Locations of the 49 Ventanillas de Salud (VDS) (“Health Windows”) locations and the 11 Mobile Health Units (MHUs) operated by the Mexican Ministries of Health and Foreign Affairs across the United States. The VDS/MHUs promote a comprehensive preventive outreach model that leverages the Mexican consular infrastructure in the United States to connect medically underserved people, such as Mexican nationals living in the United States, with a network of partner organizations that provide health-related information and services. VDS/MHUs improve access to primary and preventive health care services, promote health awareness and healthy lifestyles, increase access to health insurance coverage, and establish a medical home through information, education, on-site medical screenings, counseling, and referrals to quality health care facilities in a safe and friendly environment.

108x60mm (300 x 300 DPI)

Figure. Locations of the 49 *Ventanillas de Salud* (VDS) (“Health Windows”) locations and the 11 Mobile Health Units (MHUs) operated by the Mexican Ministries of Health and Foreign Affairs across the United States. The VDS/MHUs promote a comprehensive preventive outreach model that leverages the Mexican consular infrastructure in the United States to connect medically underserved people, such as Mexican nationals living in the United States, with a network of partner organizations that provide health-related information and services. VDS/MHUs improve access to primary and preventive health care services, promote health awareness and healthy lifestyles, increase access to health insurance coverage, and establish a medical home through information, education, on-site medical screenings, counseling, and referrals to quality health care facilities in a safe and friendly environment.

Table 1. Basic services provided by the *Ventanillas de Salud* (“Health Windows”) or Mobile Health Units, United States, January–December 2018^a

Service provided	No.
People receiving services	1 271 657
People attending orientation and information sessions ^b	2 051 685
Health screenings conducted ^c	1 873 219
Vaccines given	48 424
Health referrals	316 405
People enrolled in US health insurance	14 290

Abbreviations: MHU, mobile health unit; VDS, *Ventanillas de Salud*.

^a The VDS and MHUs promote a comprehensive preventive outreach model that leverages the Mexican consular infrastructure in the United States to connect medically underserved people, such as Mexican nationals living in the United States, with a network of partner organizations that provide health-related information and services. VDS/MHUs improve access to primary and preventive health care services, promote health awareness and healthy lifestyles, increase access to health insurance coverage, and establish a medical home through information, education, on-site medical screenings, counseling, and referrals to quality health care facilities in a safe and friendly environment.

^b People could attend >1 information session; therefore, number is higher than total people.

^c People could be screened for >1 condition (eg, HIV, body mass index, glucose, skin cancer); therefore, number is higher than total people.

Table 2. Major public health services of the *Ventanillas de Salud* (“Health Windows”)/Mobile Health Units and 3 binational (United States–Mexico) collaborative projects to advance the health of Hispanic people living in the United States^a

Public health outreach initiative	Implementation date (years in service)	Location	Population served and no. of people served	Outcomes (services provided)
VDS	2003 (16 y)	49 locations nationwide at Mexican consulates in the United States ^b	Mexican people, other Hispanic people, and other racial/ethnic minority groups (10.5 million from 2013 through 2019) ^c	Basic health screenings (eg, blood pressure, electrocardiogram, cholesterol, and diabetes screening); bilingual health information; influenza vaccines
MHUs	2016 (3 y)	11 states across the United States ^b	Mexican people, other Hispanic people, and other racial/ethnic minority groups (115 461 from February 2016 through December 2019) ^d	Remote access to care (eg, rural communities); basic health screenings
Project 1: occupational health program in collaboration with the National Institute for Occupational Safety and Health, CDC	2008 (11 y)	49 locations nationwide at Mexican consulates in the United States	Reached VDS clients in all 49 consulates; trained ≥ 300 VDS health promoters at 6 seminars and 78 consular staff members via 2 webinars	Occupational safety and health information and resources
Project 2: Zika virus education campaign by the United States–Mexico Unit of the Division of Global Migration and Quarantine, CDC	2016–2017 (2 y)	33 locations for seminars and 50 locations for printed materials nationwide at Mexican consulates in the United States	VDS educators/promoters and Mexican and other Hispanic travelers visiting friends and relatives (61 VDS educators; potential dissemination of messages to 33 VDS sites serving 990 000 people) ^e	61 VDS educators and consulate staff members participated in trainings (in-person seminars, conference calls, and a webinar) and were provided with printed materials with key messages on Zika prevention
Project 3: MHU serviced by the University of Arizona College of Public Health	2016 (3 y)	Arizona	Mexican people, other Hispanic people, and American Indian people (78 419 services for 16 342 people). More than 300 University of Arizona students and faculty participated in experiential learning through the MHU.	Remote access to care (eg, rural and native communities); basic health screenings

Abbreviations: CDC, Centers for Disease Control and Prevention; MHU, Mobile Health Unit; VDS, *Ventanillas de Salud*.

^a The VDS and MHUs promote a comprehensive preventive outreach model that leverages the Mexican consular infrastructure in the United States to connect medically underserved people, such as Mexican nationals living in the United States, with a network of partner organizations that provide health-related information and services. VDS/MHUs improve access to primary and

preventive health care services, promote health awareness and healthy lifestyles, increase access to health insurance coverage, and establish a medical home through information, education, on-site medical screenings, counseling, and referrals to quality health care facilities in a safe and friendly environment.

^b As of January 2019, a total of 49 VDS locations were in the network.

^c As reported by the VDS.²¹

^d As reported by the *Juntos por la Salud*.²²

^e Based on number of people served by 33 VDS locations; two-thirds of the users reported by VDS.²¹

1 PHR/Volume 136, Issue 1

2 MS# 20-0008

3 Section Header: Case Study/Practice

4 Peripherals: 2 tables, 1 figure

5 Keywords: culturally tailored partnerships, Hispanic, health inequities, institutional capacity building

6

7 **An Innovative United States–Mexico Community Outreach Initiative for Hispanic and Latino**

8 **People in the United States: A Collaborative Public Health Network**

9

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37 Abstract

38 Collaborative partnerships are a useful approach to improve health conditions of disadvantaged
39 populations. The *Ventanillas de Salud* (VDS) (“Health Windows”) and Mobile Health Units (MHUs) are
40 a collaborative initiative of the Mexican government and US public health organizations that use
41 mechanisms such as health fairs and mobile clinics to provide health information, screenings, preventive
42 measures (eg, vaccines), and health services to Mexican people, other Hispanic people, and underserved
43 populations (eg, American Indian/Alaska Native people, geographically isolated people, uninsured
44 people) across the United States. From 2013 through 2019, the VDS served 10.5 million people (an
45 average of 1.5 million people per year) at Mexican consulates in the United States, and MHUs served
46 115 461 people from 2016 through 2019. We describe 3 community outreach projects and their impact
47 on improving the health of Hispanic people in the United States. The first project is an ongoing
48 collaboration between VDS and the Centers for Disease Control and Prevention (CDC) to address
49 occupational health inequities among Hispanic people. The second project was a collaboration between
50 VDS and CDC to provide Hispanic people with information about Zika virus infection and health
51 education. The third project is a collaboration between MHUs and the University of Arizona to provide
52 basic health services to Hispanic communities in Pima and Maricopa counties, Arizona. The VDS/MHU
53 model uses a collaborative approach that should be further assessed to better understand its impact on
54 both the US-born and non-US-born Hispanic population and the public at large in locations where it is
55 implemented.

56

57

58 An estimated 56.5 million Hispanic or Latino people (hereinafter, Hispanic people) live in the United
59 States.¹ As of 2017, Hispanic people comprised 17.6% of the US population, which is expected to
60 increase to 25.5% of the US population by 2060.¹⁻³ Substantial social inequities exist between non-
61 Hispanic White people and Hispanic people living in the United States, including higher levels of
62 poverty and lower levels of educational attainment.⁴⁻⁸ Hispanic people also have substantial health
63 inequities, such as less access to health care and disease prevention services and lower rates of adult
64 vaccination coverage, than the general US population.^{6,9,10} Non-US-born Hispanic people generally
65 have lower access to health care and vaccination coverage than US-born Hispanic people.^{4,6,9} Hispanic
66 males living in the United States have an average age at death of 62.2 years, whereas non-Hispanic
67 white males have an average age at death of 72.0 years.¹¹

68 Despite these inequities, Hispanic people have better outcomes for some health indicators than
69 non-Hispanic White people in the United States. For example, they have lower death rates for 9 of 15
70 leading causes of death across the US population, a lower incidence of cancer and heart disease, and
71 lower rates of current smoking.⁶ Conversely, Hispanic people have substantially higher death rates than
72 non-Hispanic White people for 5 of 15 leading causes of death (chronic liver disease and cirrhosis,
73 diabetes mellitus, homicide, essential hypertension, and hypertensive renal disease), a higher prevalence
74 of obesity and diabetes, and rates of hepatitis B virus infection.^{4,6,8} Health indicators among Hispanic
75 people differ substantially by Hispanic origin subgroup (eg, Mexican, Cuban), race, country of birth, and
76 sex.^{6,12,13} However, available data are limited, given the inconsistent and inadequate collection of data
77 on demographic characteristics to account for the diversity of Hispanic people in many national data
78 systems.¹⁴

79 Limited access to health care and institutional capacity to address the needs of diverse Hispanic
80 communities highlight the need to strengthen partnerships to provide public health approaches that are
81 multimodal and culturally and linguistically appropriate.^{6,15} The 36.6 million Mexican people living in
82 the United States represented 63.4% of the overall US Hispanic population in 2014.³ As such,
83 collaboration with public health agencies and other institutions targeting this large sector of the Hispanic
84 population is of public health importance.² Collaborative partnerships are a useful approach to improve
85 health conditions of disadvantaged populations by means of culturally competent community
86 engagement and use of resources that various community partners bring to such initiatives.^{16,17}

87 We highlight 3 collaborations between the *Ventanillas de Salud* (VDS) strategy and the Mobile
88 Health Units (MHUs), which are initiatives of the Mexican government and US public health
89 organizations to improve health conditions among Mexican people and other Hispanic people in the

90 United States. We hope to raise awareness of viable models for partnerships that can be replicated or
91 adapted by public health organizations looking to improve their institutional capacity to reach Hispanic
92 communities and people or other underserved populations. Although the VDS and MHU are tailored to
93 meet the needs of Hispanic communities, they also reach other medically underserved demographic
94 groups, such as American Indian people, particularly in rural areas.

95

96 **Methods: A Collaborative Approach to Public Health**

97 The Mexican consular network in the United States provides health outreach to Mexican people and
98 other racial/ethnic minority groups living in the United States through the VDS or “Health Windows”
99 strategy implemented on site, at Mexican consulates across the United States. The MHUs, a project of
100 the Mexico Section of the United States–Mexico Border Health Commission, takes VDS services on the
101 road, reaching additional people and communities while developing best practices and innovative public
102 health programming. A unique aspect of the VDS/MHU approach is that it involves governmental and
103 public health institutions from 2 countries.

104 We describe 3 projects that illustrate this community outreach initiative, the types of basic public
105 health services and delivery methods they provide, and the collaboration between the VDS/MHU
106 initiatives and the US public health agencies at the federal and local levels.

107

108 *The VDS Strategy: A Binational Health Approach*

109 The VDS strategy is a public health initiative of the government of Mexico that is guided and supported
110 by the Ministry of Health and the Ministry of Foreign Affairs, coordinated through the Institute of
111 Mexicans Abroad via the consular network of Mexico in the United States, and operated by local
112 nongovernmental organizations. The VDS strategy is a comprehensive preventive outreach model that
113 leverages the Mexican consular infrastructure in the United States to connect medically underserved
114 people with a network of partner organizations that provide health-related information and services. The
115 VDS strategy improves access to primary and preventive health care services, promotes health
116 awareness and healthy lifestyles, increases access to health insurance coverage, and establishes a
117 medical home through information, education, on-site medical screenings, counseling, and referrals to
118 quality health care facilities in a safe and friendly environment (**Table 1**).¹⁸ The VDS strategy is
119 implemented in the waiting rooms of 49 Mexican consulates across 24 US states (**Figure**).^{19,20} The VDS
120 sites are operated by local US organizations, such as community-based organizations, health care
121 establishments, and universities, which are collectively known as “lead agencies.” The lead agencies

122 receive strategic support from a broad range of government, health care, academic, public health, and
123 community organizations, such as federally qualified health centers, to develop local and regional
124 networks of health information outreach in Spanish, medical screenings, and other services. Following
125 pre-established guidelines, lead agencies are legally in charge of receiving funding, managing resources,
126 supervising staff members, and coordinating with other organizations at the local level.

127 In addition to the 51 lead agencies, the VDS network reported partnerships with more than 600
128 local and national US agencies and organizations, including the US Department of Health and Human
129 Services, Office of Minority Health to promote the national influenza vaccination campaign and the
130 American Cancer Society to promote cancer awareness and preventive screenings.^{18,21} The VDS strategy
131 has a multiplying effect on the number and variety of services provided to the communities reached by
132 each VDS site.

133

134 *A Multimodal Approach for Public Health Services*

135 From 2013 through 2019, the VDS served 10.5 million people, most of whom were of Mexican origin,
136 at consulate locations throughout the United States.²¹ Although the VDS outreach method at the
137 consulates has been successful, VDS providers soon recognized the need to reach populations that were
138 not visiting the consulates. In 2016, the MHU strengthened and expanded VDS services to people from
139 rural communities and marginalized populations that had difficulty visiting the consulates. Eleven
140 MHUs operating in 9 states (Figure) served more than 115 000 people from their launch in February
141 2016 through December 2019.²¹ Together with the VDS strategy, MHUs can promote binational and
142 national initiatives and activities at the local level, thereby allowing for appropriate geographic and
143 community adaptations.

144

145 **A Binational Approach to Public Health: 3 Projects**

146 The following 3 projects illustrate current binational collaborations among VDS/MHUs, the Centers for
147 Disease Control and Prevention (CDC), and the University of Arizona (UA). Data collection in Project 1
148 was overseen by the CDC Human Subjects Review Board and authorized by the Office of Management
149 and Budget.

150

151 *Project 1: Addressing Occupational Health Inequities Among Hispanic People*

152 Since 2008, the VDS has collaborated with CDC's National Institute for Occupational Safety and Health
153 (NIOSH)¹⁶ to address persistent occupational health inequities affecting Hispanic people.²²⁻²⁵ This

154 decade-long collaboration began with a pilot study, in 2 consulates, to determine the most effective way
155 of providing workers with occupational safety and health (OSH) information and resources using the
156 existing VDS infrastructure.^{26,27} Exit interview data from the pilot study (N = 364) showed that most
157 respondents saw the materials, trusted the information, and were likely to act on it (Unpublished data,
158 NIOSH, 2020). The flexibility of the VDS infrastructure permitted a targeted vetting of the prevention
159 materials and their national dissemination once they proved to be effective.

160 This initial pilot study has developed into a multifaceted program of interventions, public health
161 investigations, and institutional capacity building. The collaboration has resulted in original studies by
162 external partners,²⁸ incorporation of OSH-related items into existing data collection systems (eg, the
163 VDS health intake form), trainings for 378 consulate staff members and VDS health promoters on OSH
164 topics, and an outreach model adapted by the American Academy of Dermatology to screen for and
165 prevent skin cancer among Hispanic people (Table 2).

166 All projects are designed to contribute to the larger objective of establishing a long-term,
167 institutional relationship with the Mexican Ministries of Health and Foreign Affairs. The projects are
168 also tailored to the existing infrastructure and activities at the VDS site. This approach facilitates the
169 intervention's integration into current consular and VDS activities, reduces the burden of
170 implementation on the consular staff, and helps to ensure long-term adoption once the initial project is
171 completed. A fundamental outcome of this innovative, long-term approach to partnership has been the
172 institutionalization of OSH as a priority topic for the Mexican government's health promotion efforts
173 through consular work in the United States.

174 175 *Project 2: Zika Virus Epidemic and Health Education Campaign*

176 In 2016, VDS launched coordinated efforts along with the Assistant Secretary for Preparedness and
177 Response's (ASPR's) Office of Emergency Management to increase knowledge about Zika virus and
178 draw attention to the urgency and risk of Zika virus for Hispanic people on both sides of the US–Mexico
179 border. A series of capacity-building activities on the risks posed by Zika virus began with a targeted
180 group of VDS sites along the US–Mexico border. Spearheaded by ASPR's Office of Emergency
181 Management and CDC's Division of Global Migration and Quarantine, United States–Mexico Unit
182 (USMU), this effort was the first to coordinate an urgent response to the introduction of Zika virus in the
183 Americas.²⁹

184 Mexico is the number-one travel destination of US residents, particularly those of Mexican
185 origin,³⁰ making outreach and education on Zika prevention an important component of the domestic

186 response. Subsequently, USMU expanded these efforts to the entire VDS network with a comprehensive
187 series of trainings and distribution of printed materials. USMU and Zika experts from CDC conducted 3
188 trainings to teach VDS community health educators about Zika preventive measures, with a focus on
189 travelers visiting friends and relatives. A total of 61 VDS educators and staff members from 33 Mexican
190 consulates in the United States participated in trainings and learned about CDC's web-based resources
191 on Zika virus.

192 USMU regularly shared with VDS leadership and staff members detailed maps of Zika incidence
193 in Mexico, jointly developed by CDC and the Mexican Health Ministry. In addition, USMU shared with
194 VDS leadership and staff members social media links with Zika prevention messages and copies of
195 printed educational materials in Spanish and English. Through informal discussions, project leads from
196 the United States and Mexico concluded that this collaboration was timely, useful, and effective in
197 disseminating culturally and linguistically appropriate information to priority populations during an
198 international epidemic. USMU plans to enhance and evaluate this partnership as a key strategy when
199 responding to future public health emergencies.

200

201 *Project 3: Improving the Health of Hispanic People Living in Arizona*

202 The Mexican government's efforts to expand VDS services to communities and populations beyond
203 regular visitors to the consulates yielded the MHU pilot project. Launched in 2016, the pilot project is
204 led by the UA Zuckerman College of Public Health and facilitates the 3 core activities of the university:
205 teaching, research, and service. Since 2016, more than 300 medical, public health, nursing, pharmacy,
206 and undergraduate students and faculty have participated in the experiential learning opportunities
207 provided by the MHU. The MHU provided 78 419 services for 16 342 people in Pima and Maricopa
208 counties from June 2016 through December 2019. The MHU places students in a community setting
209 unlike the controlled environment of a classroom. Students strengthen their academic preparation in
210 community health, learn about the neighborhood and community in context, and learn about the
211 importance of culture and language in health care delivery.

212 The MHU takes the personalized and holistic approach to community outreach of the VDS on
213 the road. By literally meeting community members where they are, the MHU provides some of the most
214 geographically isolated and socially marginalized populations in Arizona with tailored health care
215 services based on their needs. The MHU complements the efforts of the existing public health and VDS
216 infrastructure, which may not accommodate people who live in remote areas or offer services after hours
217 or on weekends.

218 The MHU collaborates with and receives funding from the Arizona Department of Health
219 Services to address access-to-care issues related to hypertension and type 2 diabetes, addressing 2
220 priority areas for the state and CDC. Most recently, UA is promoting Hispanic representation in social
221 and biomedical research through participation in the All of Us research program.³¹ The All of Us
222 research program is a longitudinal precision medicine research effort that examines individual
223 differences in environment, lifestyle, and genetic makeup.³¹

224

225 **Outcomes**

226 Partnering with the VDS/MHU has allowed the public health agencies involved to strengthen and
227 maximize outreach to Hispanic people in the United States, particularly those not reached by traditional
228 methods (Table 2). These 3 projects are part of the VDS/MHU's long track record of serving substantial
229 numbers of underserved Hispanic people. The VDS/MHU offers an extensive, national infrastructure
230 and a unique opportunity to link some of the most underserved people and communities in the United
231 States with local health care providers and national public health organizations dedicated to improving
232 access to health care services and eliminating health inequities.

233

234 **Lessons Learned and Opportunities**

235 A strength of the VDS/MHU approach is its reliance on components that are consistent with
236 programmatic characteristics of services (eg, linguistic and cultural tailoring, service delivery at
237 gathering places) that reach marginalized communities with public health interventions. In addition to
238 these characteristics, the VDS/MHU model incorporates innovation. Specifically, Mexico's innovative
239 expansion of the traditional role of consulates to include health promotion allows the program to
240 leverage the existing consular infrastructure to serve communities nationwide.^{19,20} Another innovation is
241 the ability to collaborate with local partners to leverage external funds to design and implement
242 interventions tailored to communities' needs. Although this hybrid model of national coordination
243 combined with local rootedness and flexibility offers much promise, one weakness is a lack of standard
244 evaluation to understand its impact longitudinally at the national level. Although data on the number of
245 services provided at each VDS/MHU site are routinely collected, empirical evidence is needed to
246 identify successful elements of the model's functioning, scope, and impact, which would facilitate future
247 adaptation and replication.

248 The VDS/MHU network has recently integrated a centralized, electronic database that collects
249 information on sociodemographic characteristics, health-related variables, and use of services at each

250 VDS/MHU site. These data offer opportunities to inform programmatic priorities, identify locations with
251 the greatest level of outreach and impact, and systematically evaluate programs at regional and national
252 levels. Many clients of the VDS/MHU experience stigma related to racism and xenophobia, which
253 further threatens their health and jeopardizes the overall well-being of the nation. The VDS/MHU sites
254 not only provide health-related services but also offer a sense of belonging, which can help people
255 overcome social stressors and stigma. Innovative programs such as the VDS/MHU, which incorporate
256 proven public health approaches to working with racial/ethnic minority communities, can help bridge
257 the gap between the community and the existing public health infrastructure.

258 As highlighted by the 3 projects, the VDS/MHU offers opportunities for collaboration across a
259 binational network of public and private partners, while diffusing public health messages and services to
260 socially and linguistically isolated populations. Potential expansion of collaborative public health efforts
261 may include research, emergency preparedness and response, dissemination of educational materials,
262 and capacity building. The VDS/MHU model is a promising intervention using an innovative
263 collaborative approach that should be further assessed to better understand its impact on both the US
264 Hispanic population and the public at large in the locations where it is implemented.

265

266 **Acknowledgments**

267 Members of the Community Outreach Work Group include Hilda Davila (Mexico Ministry of Health),
268 Angelica Lira (US–Mexico Border Health Commission [Mexico Section]), Eduardo Gonzalez-Fagoaga
269 (University of Arizona College of Public Health), Rogelio Zapata (US–Mexico Border Health
270 Commission [Mexico Section]), and Sonia Contreras (National Center for Emerging and Zoonotic
271 Infectious Diseases, Centers for Disease Control and Prevention).

272

273 **Authors' Note**

274 The findings and conclusions in this article are those of the authors and do not necessarily represent the
275 official position of the Centers for Disease Control and Prevention.

276

277 **Funding**

278 The authors received no financial support with respect to the research, authorship, and/or publication of
279 this article.

280

281 **Declaration of Conflicting Interests**

282 The authors declared no potential conflicts of interest with respect to the research, authorship, and/or
283 publication of this article.

284

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