Health of the High Plains















The Texas High Plains is deeply set in the roots of agriculture, families and communities. Agriculture in this area has continually been responsive to the needs of producers and consumers. A revised emphasis Dear Community Members, has been identified to make the connection between agriculture and the consumer as it relates to health. The Impact of AgriBusiness in the High Plains Trade Area publication has served to provide an overview of agriculture in the past. This complementary publication titled Health of the High Plains is the first edition outlining the status of health in the region with a few highlighted preventive programs.

Approximately 90% of the national health budget is dedicated to reactive health care, as opposed to the actual prevention of disease and disability. Subsequently, the U.S. continues to spend more on health care per capita than any other nation, but has among the worst health outcomes of those in the developed world. At least seven out of the top 10 leading causes of death in the U.S. and Texas are chronic diseases. But what causes these diseases? Poor dietary intake, smoking, inadequate physical activity and excess body weight account for nearly 80% of these chronic diseases. Subsequently, in 2014, 86% of the \$3 trillion spent on health care costs in the U.S. was spent to treat chronic diseases that could be prevented and treated by making comprehensive lifestyle changes.

The Texas A&M AgriLife Extension Service, with offices and personnel serving every county of the region, is poised to help communities identify the key barriers to healthy lifestyle changes and work toward systematic change. Identified programs should be science-based preventative programs that are designed to improve overall health and wellness of individuals, families and communities. Many of these programs exist within the agency, and we look forward to working together with community partners within the High Plains to build a healthier Texas and reduce the burden of preventable diseases on individuals, families and society.

Sincerely,

angela B. Burkham

Angela B. Burkham Executive Associate Director Texas A&M AgriLife Extension Service

members of Tonas ARM Agrillife will provide equal orportwrities in programs and activities, education, and examinyment to all persons regardless of recording the state of the



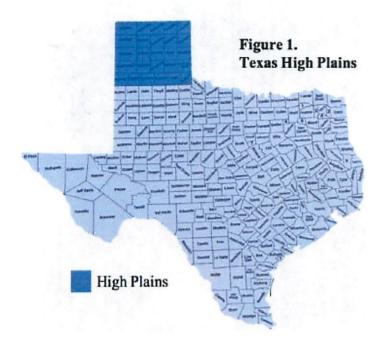












Introduction

Living and working in the Texas High Plains offers many advantages: fewer crowds, lighter traffic, tight knit communities, and beautiful natural wonders like Palo Duro Canyon. However, health care obstacles in this rural area are different than those experienced in urban ones. Health is influenced by individual-level factors, such as food choices, physical activity, genetics, education and income. Health is also impacted by the environments we live, work and play in; geographic proximity to healthcare facilities and providers; insurance quality and affordability; and public policies. This publication discusses many of these health indicators for the Texas High Plains. The Texas High Plains region is characterized as the state's 26 northern-most counties, beginning with a southern line that stretches from Parmer to Childress counties, then extends north to the Texas-Oklahoma border (Fig. 1). The Texas High Plains is an economically, geographically and demographically unique region. For example, on average, 15.3% of Texas' residents live in rural areas. In the High Plains, that number is 58.9%.

Type of Provider	Texas	Texas High Plains	
Primary Care Physicians (2016)	1:1,657	1:3,133	
Other Primary Care Providers (2016)	1:1,376	1:2,097	
Total Primary Care Providers (2016) (Sum of Physicians & Other Providers)	1:1,517	1:2,615	
Dentists (2017)	1:1,759	1:3,338	
Mental Health Providers (2018)	1:957	1:4,417	
Mental Health Providers (2018) Source: www.countyhealthrankings.org			

Amarillo, the most densely populated city, is considered a regional economic and medical hub; however for many High Plains residents, it is located more than 50 miles away.

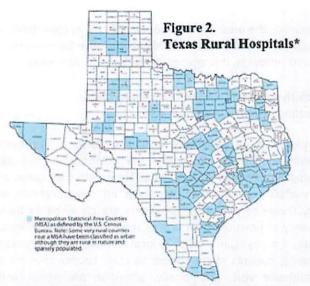
Health Indicators for the Texas High Plains

Healthcare Infrastructure and Providers

Typically, more physicians in an area leads to improved health outcomes. However, the relationship can be complex. Evidence suggests that areas with high ratios of providers to individuals may see an overutilization of healthcare services. Care providers are classified by their county of practice, even if they service multiple locations. Also, if a physician's office is located close to an adjacent county, patients might choose to cross county lines for a healthcare visit. Additionally, physician preference and insurance providers may play a role in a patient's willingness to travel. The way that healthcare is organized and coordinated may be as important to health outcomes as the number of providers in an area.



Table 1 shows the ratio of population to providers, by type, in the Texas High Plains compared to the state average. The data indicates that a typical health care provider in the Texas High Plains serves a greater number of clients than the average provider in other parts of the state. "Primary Care Physicians" include M.D.s and Doctors of Osteopathic Medicine (D.O.s), while "Other Primary Care Providers" include nurse practitioners, physician assistants and clinical nurse specialists. The highest disparity between Texas and the High Plains is with regard to mental health providers. Across the state, there is an average of one mental health provider for every 957 individuals. In the High Plains, there is one provider for every 4,417 individuals.



*Rural hospital defined by Medicare as Critical Access Hospital, Sole Community Hospital, Rural Referral Center, hospital in a ron-MSA, or other designation as rural/defined by Texas Medicaid as CAH, SCH, RRC, or in county of 60,000 population or less. Source: Texas Organization of Rural & Community Hospitals, October, 2016

In Figure 2, the red dots show Texas rural hospital locations, including critical access hospitals (CAHs). The CAH designation was created in 1997 by Medicare and Medicaid Services and was designed to reduce the financial vulnerability of rural healthcare. CAHs represent 1/4 of all U.S. hospitals. A handful of High Plains counties do not have a hospital and rely on services from volunteer Emergency Medical Responders and Technicians (EMRs and EMTs).

The availability of health clinics is also vital for optimal wellbeing. Rural health clinics (RHCs) increase access to primary care services that are important for patients in rural communities. In addition to physicians, RHCs utilize nonphysician providers, such as nurse practitioners and physician assistants. RHCs deliver primary care, including screening and basic laboratory services, which can help identify health problems early. Not all counties in the High Plains have a RHC, and even in those that do, residents may have to travel across the county, dozens of miles, to reach the clinic.



Income and Health Insurance

Income directly and indirectly affects health. It directly impacts an individual's ability to pay for health insurance, medical services, and transportation to and from doctor appointments. Those with fewer financial resources are also more likely to live in unsafe environments, have limited access to healthy foods, have fewer employment options, and have lower access to high-quality schools.

Median household income is not the same as average household income, but instead is the breaking point at which half an area's/county's population earns more than the median amount, and half earns less. Income includes but is not limited to: wage or salary income, net selfemployment, earnings on interest and dividends, Social Security income, public assistance or welfare payments, and retirement, survivor or disability pensions. Sources that are not considered income include capital gains proceeds, supplemental nutrition benefits, public housing subsidies, tax refunds, inheritances or other types of lump-sum receipts.

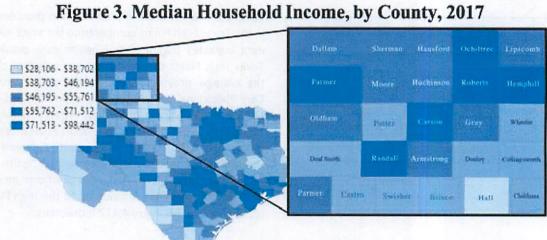
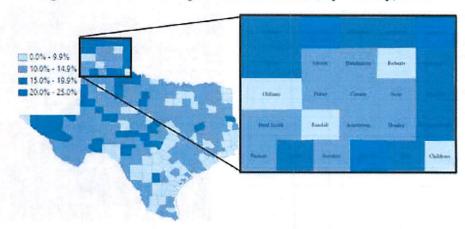


Figure 4. Percent of Population Uninsured, by County, 2016



The median income for the Texas High Plains in 2017 (\$50,552), averaged over the 26-county area, is approximately 85% of the state's median income (\$59,195). Figure 3 shows the median household income by county for the entire state.

Access to affordable insurance plays a significant role in health outcomes in two ways: it can serve as a mode of expanding access to care, and as a tool to lower the cost of receiving care. Insurance is not solely used to cover costs related to acute medical issues; it also increases the utilization of preventive care, which results in better health outcomes and lower overall healthcare expenditures.

Texas ranks particularly poor (in the 10th percentile) among U.S. states for percentage of citizens uninsured. Overall, 19% of Texans under the age of 65 were uninsured in 2016, compared to a national average of 10%. The percentage of uninsured Texas High Plains residents is higher than both national and state values. In 2016, on average, 22.4% of the region's population lacked health insurance (Fig. 4).

<u>Texas A&M AgriLife Extension Service</u> <u>Better Living for Texans</u>

Better Living for Texans (BLT) is a program that specifically addresses the needs of low-income families. Its mission is to provide research and evidence-based nutrition, health and wellness education that empowers individuals, families and communities to make positive lifestyle changes. BLT delivers nutrition programs specifically tailored to Supplemental Nutrition Assistance Program (SNAP) eligible audiences that are cost-free and close to home. The program teaches participants how to prepare healthy meals, improve their physical fitness, save money at the grocery store, grow their own foods, and adopt better food safety habits. One BLT program for youth and families is called Learn, Grow, Eat & Go! (LGEG). LGEG is a 10-week nutrition and gardening program that serves schools with a high proportion of students needing free or reduced lunches. The program also satisfies Texas Essential Knowledge requirements.

Through their Family & Community Health and Better Living for Texans programs, AgriLife Extension county agents reach over 63,000 SNAP eligible recipients annually in the greater Amarillo area.

Nutrition and Physical Activity

Poor dietary intake, smoking, inadequate physical activity and excess body weight account for nearly 80% of chronic diseases. There is no standardized definition of chronic diseases, but they are broadly recognized as sharing the following characteristics:

- · Conditions that develop over time
- Non-communicable
- · Last for at least one year
- Require ongoing medical care
- · Can limit activities of daily living
- Are largely preventable



Table 2. 10 Leading Causes of Death in Texas, 2017					
Cause of Death	Texas Deaths	Texas Rank*	U.S. Rate**	Texas Rate***	
1. Heart Disease	45,346	18th	165	169.2	
2 Cancer	40,668	37th	152.5	146.5	
3. Stroke	10,790	13th	37.6	41.3	
4. A ceidents	10,763	45th	49.4	38.8	
5. Chronic Lower Respiratory Disease	10,650	31st	40.9	40.5	
6. A lzh eimer's disease	9,545	12th	31	38.5	
7. Diabetes	5,832	26th	21.5	21.2	
8. Septicemia	4,268	7th	10.6	15.8	
9. Kidney Disease	4,256	14th	13	16	

^{*} Rankings are from highest to lowest.

10. Chronic Liver

Disease/Cirrhosis

10th

10.9

Source: Stats of the State of Texas, 2017. https://www.cdc.gov/nchs/pressroom/states/texas/texas.htm

4,107

At least seven of the top 10 leading causes of death in Texas are chronic diseases, with the top three being heart disease, cancer and stroke (Table 2). Management and treatment of chronic illnesses can be emotionally and financially taxing on individuals and families. For example, the American Diabetes Association reported that people with diabetes have medical expenses approximately 2.3 times higher than those who do not have diabetes. Figure 5 shows the percentage of people in Texas, aged 20 and above, with diagnosed diabetes. In the High Plains, at least 7% of the population in every county has diabetes. In 13 counties, the proportion is greater than 10%.

Figure 6 shows death rates from cardiovascular disease among Texans between 2014 and 2016. Thirteen High Plains' counties experienced rates of 46 deaths or more per 10,000 people.



Ochiltree, Hutchinson, Potter, Hall and Childress counties reported between 59 and 77 deaths per 10,000 – some of the highest rates across the state.

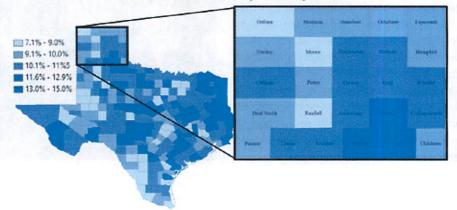
Along with a nutritious diet, regular physical activity is a cornerstone of a healthy lifestyle. A lack of activity can have significant consequences, including obesity, Type 2 diabetes, cancer, stroke, hypertension, cardiovascular disease and premature mortality. Additionally, physical inactivity has been linked to significant expenditures for circulatory system disease treatment.

One measure of physical fitness levels in adults is the percentage of self-reported days without any physical activity during leisure time. For instance, if a surveyed population said they were not physically active three days out of 30, 10% of the days would be considered physically inactive. Importantly, the data for this measure does not consider the physical activity undertaken during work, only during leisure time. On average, Texans are physically inactive 23% of the time, while the High Plains averages 24.8% of physical inactivity time.

Access to healthy foods also plays a role in an individual's ability to prepare and eat nutritious meals. The Food Environment Index measures factors that contribute to a healthy food environment, with 0 being the worst and 10 being the best. The Food Environment Index is calculated by evaluting two elements, food access and food security. Food

Figure 5. Percentage of Adults Aged 20+ with Diagnosed Diabetes, All Races/Ethnicities by County, 2015

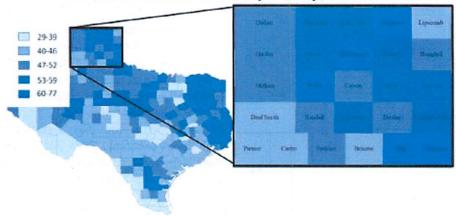
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^{**} Rates for the U.S. include the District of Columbia and (for births) U.S. territories. Refer to notes in publication tables for more detail.

^{***} Death rates are age-adjusted. Refer to source notes below for more details.

Figure 6. Total Cardiovascular Disease Death Rate per 10,000, 35+, All Races/Ethnicities, by County, 2014-2016



access accounts for the portion of the population that is low income and does not live close to a grocery store -- within 10 miles in a rural area and within 1 mile in an urban area. Food insecurity measures the percentage of the population that does not have access to a reliable food source over a one-year period.

In 2015 and 2016, the state average Food Environment Index was 6.0, while the High Plains average was 7.05 (Fig. 7), indicating that the population of the High Plains benefited from slightly better food access and/or security than the remainder of the state. In fact, 20 of the 26 counties on the Texas High Plains had a higher Food Environment Index than the state average.

Texas A&M AgriLife Extension Service Nutrition Programs & Walk Across Texas!

Taking steps to prevent the onset of chronic disease is more cost-effective than treating those diseases once they've developed; and eating healthy and exercising regularly aids in the prevention of chronic disease. However, developing healthy habits can be challenging without outside support and assistance.

The Texas A&M AgriLife Extension Service is a unique

educational agency with a vision to help Texans better their lives by providing research-based informational programs on a wide range of topics.

Texas A&M AgriLife Extension Service offers nutrition and physical activity programs that teach youth and adults the skills needed to maintain a healthy lifestyle. Some of AgriLife's signature adult nutrition programs include A Fresh Start to a Healthier You, Step Up and Scale Down, Maintain No Gain, Cooking Well with Diabetes, Cooking Well for Healthy Blood Pressure and Dinner Tonight. Youth programs include Dinner Tonight Junior, and Learn, Grow, Eat & Go!. AgriLife Extension county agents also conduct nutrition education for youth through the 4-H program.

Another program, Path to the Plate, teaches consumers about the connection between agriculture, the foods we eat and health. Misinformation is abundant on the internet. Path to the Plate is designed to deliver factual, research-based, unbiased information to help people make informed decisions about the foods they choose to consume.

Mental Health

Mental health refers to an individual's emotional, psychological and social wellbeing. It is an integral, but often misunderstood, component of overall health. Poor mental



health extends beyond the individual and impacts families, communities and entire economies. Mental illnesses can be as disabling as physical ailments, resulting in decreased productivity and missed workdays. According to the Behavioral Risk Factor Surveillance Survey, Texans across the state reported an average of 3.4 mentally unhealthy days per month, while the Texas High Plains averaged 3.6 mentally unhealthy days per month.

As national media has highlighted over the past years, suicide rates are on the rise. Between 1999 and 2016, Texas suicide rates increased by 18.9%. Suicide is the 11th leading cause of death among Texans, and the second leading cause of death for those aged 15-34. Suicide rates are also higher in rural areas compared to more urbanized ones. In fact, those who live rurally generally experience greater incidence of disease and mortality overall compared to their urban counterparts due to social, economic and geographic factors:

- Higher proportion of uninsured and underinsured.
- Lower access to quality health services.
- Rural residence is generally associated with lower rates of physical activity.



 Tobacco use is more prevalent in rural areas than nonrural areas among adults and adolescents.

Farmers and ranchers are vulnerable to common stressors as well as unique ones. During times of low commodity prices, financial stress can run high. Drought and natural disasters, such as wildfires, can also be devastating to the livelihood of agricultural producers and their families. In fact, farming ranks in the top 10 most stressful occupations in the U.S. Agriculture plays a significant role in the Texas High Plains economy. From 2015-2018, agriculture in the High Plains area had an annual average economic impact of \$9.9 billion and employed approximately 14,600 people.

<u>Texas A&M AgriLife Extension Service</u> <u>Mental Health and Wellness Programs</u>

Due to the need for mental health education, Texas A&M AgriLife Extension Service has expanded its program offerings in this field. Over the past two years, High Plains and Central Plains county agents have become certified Mental Health First Aid instructors. This program teaches participants how to identify, understand and respond to signs of mental illnesses and substance-use disorders. The training gives participants the skills they need to provide initial support to a friend, family member, co-worker or other adult who may be developing a mental health or substance-use problem. There is also a youth version of the program that gives adults who work with youth -- teachers, coaches, 4-H leaders -- these same skills.

Texas A&M AgriLIfe Extension Service partnered with the Panhandle Behavioral Health Alliance to host the area's first Peace of Mind Conference in May 2019. This community awareness event included a keynote speaker, Q&A panel, art exhibit and resource fair.

Youth

Children and young adults represent a unique subset of the population. Two measures of well-being in youth are high school graduation rate and the percentage of children eligible for free or reduced-price lunch. The Texas High



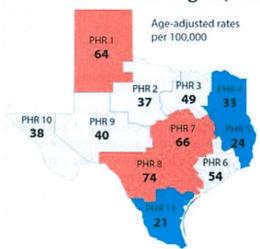
testing and product research. In the food and nutrition project, members learn kitchen and cooking safety, how to prepare healthy meals and snacks, and meal ideas aimed at decreasing the incidence of disease. Youth in the food and nutrition project also focus on nutrition, food purchasing, preparation and safety, and careers in this field. The agricultural science project bridges the divide between the food we eat and how it is produced. Members discover how food is grown and harvested, how to measure food quality, and how to identify various cuts of meat, types of crops, and fruits and vegetables.

For more than 10 years, 4-H has partnered with Tufts University to study the effectiveness of its youth development programs. This first of its kind research found that 4-H's unique hands-on approach gives youth the opportunity to learn by doing and build life skills. 4-H's Study of Positive Youth Development is a longitudinal study that began in 2002 and was repeated annually for eight years, surveying more than 7,000 adolescents from diverse backgrounds across 42 U.S. states. The study showed that 4-H members:

- Reported higher academic competence in Grades 7, 9, 11 and 12, and higher school engagement at Grades 11 and 12 than participants enrolled in other out-of-school activities.
- Are nearly 2x more likely to make healthier choices.
- Are nearly 2x more likely to be civically active.
- Are nearly 2x more likely to participate in science programs during out-of-school time.
- Are nearly 4x more likely to make contributions to their communities.



Figure 8. Fall death rates by Texas Public Health Region, 2015



Source: Texas Injury Data Brief, May 2017, "Unintentional falls among adults aged 65 years and older in Texas"

Texas A&M AgriLife Extension Service also trains Healthy Texas Youth Ambassadors. Youth Ambassadors are high school students, both 4-H and non-4-H, who have a passion for health and wellness. These youth are trained in various health topics to educate and motivate their peers to make healthy lifestyle changes to improve their health. Each ambassador must complete 50 hours of program efforts or community service annually and must attend face-to-face and online trainings over a two-year term. In 2019, 17 teens from seven different counties were trained as Youth Ambassadors in the Texas High Plains. A segment on the dangers of vaping was included in the training.

Older Adults

Among older adults, falls are a leading cause of unintentional, non-transport deaths in Texas. While a fall is a physical injury, it may also have mental and emotional effects, leading to a decrease in activity, which increases the possibility of a subsequent fall. Figure 8 shows death rates due to falls among Texans 65 years and older in 2015. The Texas High Plains had one of the three highest rates in the state, averaging 64 falls for every 100,000 people.

<u>Texas A&M AgriLife Extension Service</u> <u>A Matter of Balance</u>

Texas A&M AgriLife Extension Service provides A Matter of Balance, an evidence-based fall risk reduction intervention, to help older adults acknowledge their risk of falling while providing practical, applicable strategies to help reduce it. During the educational sessions, participants learn to view falls and fear of falling as controllable, set realistic goals for increased activity levels, change their environment to reduce fall risk factors, and increase strength and balance through physical exercises. Program participants gain increased confidence in managing fall risk and actual falls, if

Plains has an average high school graduation rate of 94.8%, which is higher than the state average of 89%. Graduation rate measures the percentage of ninth graders who finish high school in four years. Graduation rate is not a direct measure of quality of education, but a high school diploma does provide access to a higher average income. Additionally, higher levels of education are associated with decreased smoking and greater physical activity.

Food insecurity in children is associated with impaired development and an increased risk of poor health. The National School Lunch Act provides eligible children with adequate nutrition to support well-being and development. The Texas High Plains and the state at large are closely related in this metric, with 57.5% of students and 58.9% of students eligible for free or reduced-priced lunches, respectively.

A third measure of well-being among youth comes from the Texas Youth Risk Behavior Survey (YRBS). The YRBS is a classroom-based survey that monitors important healthrisk behaviors that contribute to the leading causes of death, disability and social problems among youth and adults in the U.S. While these data are not specific to the High Plains, the Texas YRBS found in 2017 that 34.2% of high schoolers reported feeling sad or hopeless for two weeks or more in a row, 17.6% of respondents reported they had seriously considered attempting suicide in the past 12 months, and 12.3% reported they had attempted suicide. As mentioned in the previous section, the Youth Mental Health First Aid program now offered by Texas A&M AgriLife Extension Service is intended to better equip adults with the





skills needed to respond to a youth in crisis or struggling with a mental health challenge.

The dangers of using electronic cigarettes, also known as "vaping," is an emerging public health concern across the U.S. The Texas YRBS found in 2017 that 41.2% of 9th-12th graders who responded to the survey reported that they had used an electronic vapor product at some point in their life. In contrast, 30% reported trying cigarettes.

Texas A&M AgriLife Extension Service - 4-H

Texas A&M AgriLife Extension Service is the parent agency of Texas 4-H, which provides local clubs for youth aged 5-18. 4-H is the largest youth development program in Texas, with more than 550,000 enrolled each year. The High Plains has over 3,000 youth participating in this program, and reaches over 10,000 young people annually through curriculum enrichment and various outreach programs. In 4-H, activities are organized by topics called projects. All 4-H members must be enrolled in at least one project. When youth participants choose a project, they learn everything there is to know about that topic by engaging in hands-on activities, learning new skills, doing community service, or even making speeches.

In the High Plains, 4-H projects include health and personal safety, consumer education, citizenship, community service and leadership, nutrition and others. The health and personal safety project encourages physical activity and responsible eating. 4-H club meetings teach the science behind healthy habits and role model healthy behaviors. In the consumer education project, youth learn how to save money while shopping through price comparison, quality

they occur, decreased concerns about falls interfering with socialization, and higher physical activity levels.

Conclusion

Working towards a healthy mind and body is an ongoing process that requires collective efforts from individuals, families and communities. The High Plains contributes to the economic health and cultural fabric of Texas. Almost 20% of the value of agricultural products produced in Texas come from these 26 counties. The future prosperity of the area and its contribution to the state's larger economy will rely on the health and wellbeing of its citizens.

Early prevention of diseases is cost-effective and yields better health outcomes than treatment after the fact. Texas A&M AgriLife Extension Service will continue its mission of bettering the lives of all Texans through delivery of research-based health education in the areas of nutrition, physical activity, mental wellness, youth development and programs for older adults. If you are interested in learning more about your county health data or about any of the AgriLife Extension programs mentioned in this report, please contact your local county agent, or a faculty member at the Texas A&M AgriLife Research and Extension Center in Amarillo.



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AgriLife Extension, WTAMU faculty and local school teachers trained as Mental Health First Aid instructors.

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