

Urbanisation, Illness and Catastrophic Health Expenditures in India

Dr. C. Saravanan

Assistant Professor, School of Social Science and Humanities, B.S. Abdur Rahman Crescent,
Institute of Science & Technology, Vandalur, Chennai 600 048, India.

Dr. N. Vijayakumar

Assistant Professor, Department of Commerce, B.S. Abdur Rahman Crescent Institute of
Science & Technology, Vandalur, Chennai 600 048, India.

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Abstract

Healthcare is indispensable to human survival, yet in India it is often excluded from household budgets due to its unpredictable nature. Heavy reliance on out-of-pocket (OOP) payments—covering nearly 70% of health costs—makes households highly vulnerable to catastrophic health expenditure (CHE) and medical poverty. Such spending forces families to cut back on essentials, incur debt, or forgo necessary treatment, creating a cycle of illness and poverty.

This study focuses on Delhi, a city with high income levels and modern infrastructure but stark inequities in healthcare access. Drawing on data from the 71st round of the National Sample Survey, it examines patterns of morbidity, hospitalization, and health spending. Results reveal that Delhi’s hospitalization rate is below the national urban average, yet treatment costs—especially for chronic conditions and childbirth—remain extremely high in private facilities, averaging nearly four times those in public hospitals. Insurance coverage is minimal, with more than 80% of households lacking any form of protection, leaving families exposed to severe financial shocks.

The findings confirm that Delhi is a high-risk OOP payment zone, with significant evidence of catastrophic expenditures and hidden medical poverty. Addressing these challenges requires urgent policy action to strengthen public healthcare, expand insurance coverage, and reduce dependence on OOP financing to achieve universal health coverage.

Key Words: Out-of-Pocket (OOP); Catastrophic Health Expenditure (CHE); Medical Poverty.

Introduction

A household, in the role of a consumer, consumes several goods, some of which are classified as necessities, while others as luxuries. Commodities which are generally considered as necessities include food as the most important component, followed by other basic needs required by people to survive and function normally. Most such necessities of life have to be consumed on a regular basis, and therefore find a place in the households' monthly budget. Although healthcare is a fundamental component of human well-being, it often does not appear explicitly in household budgets for basic needs. This omission is largely because healthcare expenses are incidental, arising unpredictably rather than as part of regular consumption. It is widely accepted that for an individual to survive, perform daily tasks, or contribute effectively as a worker, family member, or community participant, good health is essential. Being "healthy" in this context means free from any illness or condition that could impair these roles or threaten life. However, expecting that individuals will never fall ill is unrealistic, as human life is inherently vulnerable to disease, injury, and other health disruptions. Morbidity is, therefore, an unavoidable fact of life.

Advances in medical science have made it possible to cure, prevent, or at least delay many illnesses. Every country operates health systems that provide preventive, diagnostic, and curative services. The timely use of these services, along with adherence to prescribed treatment, can significantly reduce the loss of well-being caused by illness.

Consequently, in addition to food, water, electricity, clothing, and shelter, access to healthcare should be considered a basic household necessity. Without it, the ability to sustain life and productivity is compromised whenever illness occurs. However, as Van Doorslaer et al. (2006) and O'Donnell et al. (2008a) observe, the inherently stochastic nature of healthcare needs—that is, their unpredictability—explains why they are often excluded from formal household budget planning. While other necessities are consumed regularly and predictably, healthcare remains a contingency, emerging only when a health issue arises. Nonetheless, its importance to survival and quality of life is indisputable, making it an essential, if often overlooked, component of subsistence.

Out of Pocket Payments for Healthcare

Medical care is never free—it must be financed in some way. Funding for healthcare can come from various sources, including government expenditure, healthcare providers, grants or donations, pooled community resources, insurance schemes, or direct payments by patients and their households. When the cost of healthcare is borne directly by the affected household at the time services are received, it is referred to as out-of-pocket (OOP) expenditure. The World Health Organization defines OOP payments as direct household payments made at the point of care, excluding reimbursements from insurance, as well as transportation and other indirect treatment-related costs.

The choice of financing mechanism plays a crucial role in determining the economic impact of healthcare. Among the various methods, OOP payments are widely regarded as the most inefficient, inequitable, and regressive form of healthcare financing. This is because, in practice, patients often end up paying more compared to prepayment or pooled financing schemes. For households without comprehensive health insurance, heavy reliance on OOP payments can disrupt their material living standards. Moreover, the high financial burden may discourage individuals from seeking necessary medical care, leading to delayed or foregone treatment. Such avoidance not only risks worsening health conditions but can also result in further loss of income due to prolonged illness. Thus, while healthcare is indispensable, the way it is financed—particularly when dependent on OOP spending—has significant implications for both equity and overall well-being.

Catastrophic Health Expenditures

When out-of-pocket health expenses (OOPHE) consume a disproportionately large share of a household's resources, they can severely disrupt the family's living standards. In such situations, households may be forced to reduce consumption of essential goods—such as food, housing, or education—to cover medical costs. This condition, where health spending forces the sacrifice of subsistence needs, is known as *catastrophic health expenditure* CHE.

The concept was first formally introduced by Berki 1986, who defined CHE as medical spending high enough relative to household income to impair living standards. Modern studies have operationalized CHE using two main measurement approaches:

1. Budget Share Threshold – If healthcare spending exceeds 10% of total household monthly expenditure, the household is considered to be facing CHE.
2. Capacity-to-Pay Threshold – If healthcare spending exceeds 40% of household's capacity to pay, where capacity to pay refers to income remaining after food and subsistence needs are met.

A landmark global study found that about 150 million people worldwide experience financial catastrophe annually because they must pay directly for health services. The consequences can be long-term, including depletion of savings, debt accumulation, and reduced investment in future earning capacity.

Medical Poverty

To assess the economic consequences of health costs, it is important to know the minimum resources required for basic living. In many developing countries, official poverty lines are based on the cost of purchasing a “basket” of essential foods that meet minimum nutritional requirements, with some allowance for basic non-food items.

However, these traditional poverty lines overlook critical aspects of well-being such as safe drinking water, sanitation, safety, and healthcare. Health expenses are typically excluded because illness occurrence is unpredictable and variable. In countries where healthcare

financing depends largely on out-of-pocket payments and insurance coverage is minimal, medical costs directly compete with food and other essentials for household funds. As a result, official poverty measures underestimate the true level of deprivation.

For poor households that already spend most of their income on basic survival, an uninsured illness can be financially ruinous. If healthcare payments leave insufficient funds for subsistence, households may have to cut food intake, liquidate productive assets, or take on debt.

When health expenses push a household's post-payment income below the poverty line, the family experiences *medical poverty*—poverty induced solely by medical spending. In India, data from the 60th round of the National Sample Survey (2006) revealed that 6% of the urban population—about 18 million people—were impoverished due to out-of-pocket medical costs. Hospitalization for major illnesses is a major driver of indebtedness, especially for households already near or below the poverty line as stated by WHO, 2010.

Beyond pushing households into poverty, a further crisis occurs when they cannot afford treatment at all. Without resources or viable coping strategies, families may forgo necessary care, worsening health outcomes and potentially creating a *poverty trap*. In this trap, illness reduces earning capacity, leading to lower incomes, which in turn worsens poverty and limits healthcare access.

This dual burden—financial ruin and untreated illness—stands in sharp opposition to the World Health Organization's goal of universal health coverage.

Universal Health Coverage:

Recognizing that health is central to human well-being, the World Health Organization (WHO) urged all member states in 2005 to design financing systems that ensure everyone has access to needed services without financial hardship. This vision is known as *universal health coverage* (UHC).

UHC entails providing comprehensive healthcare to the entire population, with financial protection against medical costs. In high-income countries, nearly all citizens are covered through public health systems or social insurance, ensuring equitable access and protection against financial catastrophe.

In contrast, most low- and middle-income countries still rely heavily on out-of-pocket payments. This dependence exposes households to significant financial risk and reinforces inequities in healthcare access—poorer families often delay or avoid treatment due to cost.

Achieving UHC in such contexts requires increased public investment, expansion of insurance coverage, and subsidies for the poor. Without such measures, the twin challenges of catastrophic expenditure and inequity will persist.

Urbanization and Inequity:

India's urbanization has accelerated dramatically in recent decades. Urban populations are growing faster than rural populations, and projections indicate that by 2026, the urban

population will reach 534 million. However, this growth is accompanied by a rise in urban poverty. Expanding slum settlements signal deteriorating living conditions and deepening deprivation.

Urban poor households often face a cluster of vulnerabilities—unreliable income, insecure housing, overcrowding, poor sanitation, and high exposure to disease. According to UN-Habitat, slums are characterized by insecure tenure, substandard housing, overcrowding, and inadequate access to safe water, sanitation, and infrastructure. Despite some variation in state-level definitions, these conditions consistently place slum residents at high health risk, often comparable to or worse than that of rural populations.

Urban healthcare is dominated by private providers, while private facilities may offer higher quality or faster service, they are generally more expensive. Public facilities, on the other hand, often suffer from underinvestment and low quality. The combination of higher disease vulnerability and higher treatment costs makes the urban poor especially prone to catastrophic health expenditures.

This reflects the *inverse care law*—the observation that health systems tend to provide better services to wealthier populations, who need them less, than to poorer populations, who need them more but cannot afford them. In India, the private sector’s focus on profit rather than public health goals, combined with declining public investment, has deepened this inequity.

Economic liberalization and privatization have also fuelled the growth of corporate healthcare, including super-specialty hospitals that attract international medical tourists, particularly in cities like Delhi. While this boosts India’s reputation for advanced care, it also risks increasing the general cost of healthcare, making it less affordable for locals.

To address these issues, the government must strengthen public healthcare delivery, ensuring affordability and quality that can compete with private providers. Without such improvements, the public sector’s protective role will diminish, worsening inequities in urban healthcare access.

Key Concepts and Definitions

Concept	Definition	Common Measurement Criteria	Key Statistics / Findings
Catastrophic Health Expenditure (CHE)	Health spending so high relative to household resources that it disrupts living standards.	• $\geq 10\%$ of total household expenditure; • $\geq 40\%$ of capacity to pay (post-subsistence income).	150 million people globally face financial catastrophe annually due to health costs.
Capacity to Pay	Household income after subtracting food/subsistence expenses.	Used as the denominator in the 40% CHE threshold.	Highlights disproportionate impact on low-income households.
Medical Poverty	Household falls below poverty line solely due to health spending.	Post-medical payment income < national poverty line.	6% of urban Indians (~18 million people) impoverished by OOP

			medical costs (NSS 60th round).
Poverty Trap (Health-related)	Cycle where illness reduces earning capacity, lowering income and further limiting healthcare access.	—	Leads to chronic poverty and poor health outcomes.
Universal Health Coverage (UHC)	Access to necessary health services without financial hardship.	Population coverage + financial protection + service availability.	Many high-income countries have achieved full coverage; most LMICs rely on OOP payments.
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The Indian Scenario:

India, the world's largest democracy and second-most populous country, bears a disproportionately large share of the global disease burden—approximately 21% of the world's total (WHO, 2015). The country faces a dual challenge like persistently high levels of communicable and infectious diseases, alongside a rising wave of chronic, non-communicable diseases (NCDs). NCDs already account for 66% of total morbidity and 53% of all deaths, and these figures were projected to rise to 59% of all deaths by 2015. The increasing prevalence of such diseases is compounded by widespread lack of awareness, inadequate preventive care, and limited screening services. These gaps result in significant economic loss—WHO (2015) estimates that India forfeits over 6% of GDP annually due to premature deaths and preventable illnesses.

Low Public Spending and Heavy Out-of-Pocket Payments:

India spends 4.2% of its GDP on health, but the government's share is only 1.1% - one of the lowest public health expenditure rates in the world (WHO, 2013). Public financing accounts for just 20% of total health expenditure, while households bear almost 70% of the cost, almost entirely through out-of-pocket (OOP) payments, when compared internationally—both globally and within Asia—India's public contribution to healthcare spending is among the lowest. This imbalance between public and private financing places enormous financial pressure on individuals, pushing many into economic distress and discouraging healthcare utilization.

Declining Utilization of Public Health Facilities:

In the year 2020 there was a significant drop in public facility usage over time:

- Outpatient visits to public facilities fell from 25% to 20% of total visits.
- Inpatient admissions in public facilities dropped from 60% to 40%.

Low public spending translates into limited capacity and poor quality of government health infrastructure.

Shortage of Healthcare Professionals:

When adjusted for qualifications, India has less than one-fourth of the WHO-recommended benchmark for allopathic doctors, nurses, and midwives. This shortage undermines service delivery, especially in rural and underserved urban areas.

Policy Shifts Increasing Patient Costs:

Between 1994 and 2004, India's healthcare reforms saw a shift toward increased user fees.

- User fees were formally introduced during the Eighth Five-Year Plan (1992–1997).
- This period coincided with a decline in government health spending, particularly at the state level.

During the same period, medicine prices rose, driven partly by the Drug Price Control Order (1994), which reduced statutory price controls on many essential drugs. Liberalization of the pharmaceutical sector also contributed to higher costs.

Rising Financial Burden on Households:

These policy changes increased OOP health expenditures for both public and private sector users. Even those seeking treatment in public facilities often face high costs due to medicine purchases, diagnostic tests, and informal payments. As a result, the financial consequences have been severe:

- Increased risk of catastrophic health expenditures (CHE).
- Reduced access to essential care for low-income households.
- Greater inequality in health outcomes between rich and poor.

Overall, India's healthcare financing model—marked by minimal public investment, high reliance on private spending, and rising treatment costs—has left large sections of the population vulnerable to both health and financial crises. Without a significant shift toward greater public funding and regulation of costs, the twin challenges of disease burden and economic hardship will continue to persist.

The Government of India has introduced several programs aimed at improving healthcare access and reducing the financial burden on the poor. Two of the most significant national initiatives are:

1. **National Rural Health Mission (NRHM)** – Launched in 2005 to strengthen rural healthcare infrastructure, enhance service delivery, and improve health outcomes.

2. **Rashtriya Swasthya Bima Yojana (RSBY)** – A national health insurance scheme designed to provide cashless hospitalization coverage for people living below the poverty line.

In addition to these central programs, several states have launched their own health insurance schemes targeting low-income populations. While these initiatives have expanded coverage to some extent, public expenditure on health has remained largely stagnant, these schemes have achieved only partial success in meeting their intended goals, leaving gaps in both accessibility and quality of care.

The Case of Delhi:

Delhi, the capital of India, ranks among the 20 largest cities in the world. Geographically, it is situated in the northern part of the country along the banks of the Yamuna River, bordered by Uttar Pradesh to the east and Haryana to the north, west, and south. The city has a population of approximately 1.68 crore (16.8 million). According to the 2011 Census, 93% of residents live in urban areas.

Economically, Delhi has developed strong infrastructure—airports, railway networks, roads, a metro system, and commercial complexes—that supports its role as a major hub for business and services. The city recorded an impressive 15.35% growth rate in 2013–14, and its Gross State Domestic Product (GSDP) in 2014–15 was ₹4,51,154 crore, with the service sector contributing 87.5% of this output (Economic Survey of Delhi, 2014–15). Delhi's per capita income, at ₹2.41 lakh annually, is nearly three times the national average of ₹87,748.

In terms of basic amenities, 81% of households have piped water supply and the literacy rate stands at 85%.

Demographic Trends and Urbanization Challenges

Although Delhi's population growth rate has slowed over the last three census periods (1991, 2001, and 2011) - declining by roughly 27 percentage points per decade (Government of NCT of Delhi, 2013) - the city continues to receive a substantial influx of migrants. Each year, approximately two lakh people migrate to Delhi, drawn by job opportunities in the service sector and access to higher education.

Rapid urbanization has significantly reduced the proportion of land under village administration. However, the problems associated with unplanned urban growth—such as overcrowding, inadequate housing, and poor sanitation—have intensified. Nearly half of Delhi's population resides in substandard housing, including slums, unauthorized colonies, and resettlement areas. In addition, the city is home to roughly 1 lakh homeless individuals.

According to official estimates for 2011–12, 16.96 lakh people lived below the poverty line in Delhi. This concentration of poverty within a highly urbanized setting presents unique public health challenges.

Health Infrastructure and Capacity

As of 2014–15, Delhi's healthcare infrastructure comprised:

- 95 hospitals
- 1,389 dispensaries
- 367 maternity homes
- 973 polyclinics
- 16 medical colleges

The total bed capacity across all facilities was 48,096, translating to 2.71 beds per 1,000 population—a figure below the ideal benchmarks for urban healthcare provision.

Health Indicators:

Life expectancy in Delhi is 72 years, which is higher than the national average of 68 years. This longevity, while a positive indicator, also contributes to an increasing elderly population, placing additional demands on the healthcare system.

In 2013, 82% of total births in Delhi took place in healthcare institutions, indicating relatively high institutional delivery rates. However, despite this, the infant mortality rate (IMR) remains at 22 deaths per 1,000 live births, which is considered high for an urban area with substantial healthcare resources.

Delhi presents a complex health scenario. On one hand, it has high income levels, strong infrastructure, and better-than-average life expectancy compared to the rest of India. On the other, the city faces persistent challenges:

- A large migrant population increasing demand on services.
- Nearly half the population living in inadequate housing.
- Significant levels of poverty despite high per capita income.
- Limited healthcare capacity relative to population needs.
- Persistent infant mortality despite high rates of institutional births.

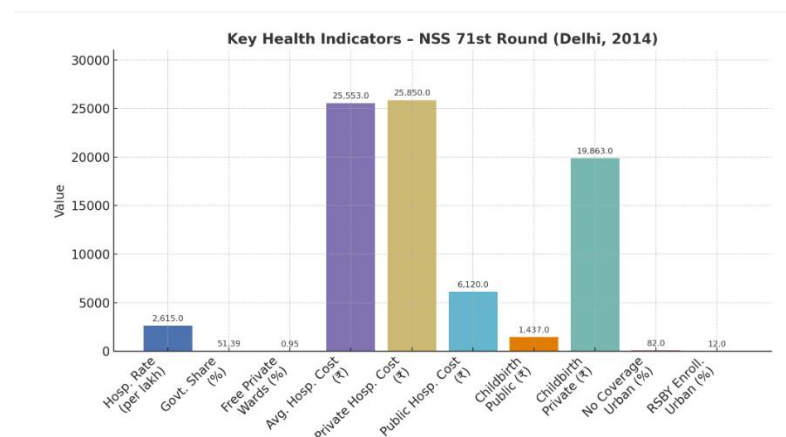
While national and state initiatives like NRHM and RSBY have aimed to improve access and reduce the financial burden, public investment in healthcare remains inadequate, and Delhi's situation underscores the urgency for expanding capacity, improving service quality, and targeting underserved population.

The National Sample Survey:

The year 2014, which marked the data collection period for the present study, coincided with the conduct of the most recent health survey under the National Sample Survey (NSS), namely its 71st round. The National Sample Survey is widely recognized as the most extensive and reliable source of data on health expenditure in India. Most academic and policy-based analyses on *Catastrophic Health Expenditure (CHE)* rely heavily on its dataset due to its scope, methodological rigor, and representativeness.

Previously, the NSS had undertaken its 60th round survey on Morbidity and Health Care between January and June 2004 (GOI, 2006). After a gap of nearly a decade, the survey on *Social Consumption and Health* was carried out as part of the 71st NSS round during

January–June 2014. Although not all reports and analyses from this round have been published in full, several preliminary results have been disseminated, allowing valuable insights into the health situation in Delhi during this period. The Delhi state sample for the 71st round comprised a total of 65,932 households, of which 29,542 were located in urban areas (GOI, 2016). The survey's findings reveal significant patterns in morbidity, hospitalization, healthcare utilization, and expenditure. The major observations are summarized below.



Key Findings for Delhi

- Prevalence of Ailment:** Fifty out of every 1,000 individuals reported suffering from some form of ailment, with the highest proportion of cases among persons aged over 60 years. Within a fifteen-day recall period, an estimated 6.25 lakh people in Delhi reported non-hospitalized ailments, while over the 365-day recall period, 3.36 lakh individuals reported hospitalization cases (excluding childbirth).
- Hospitalization Rate:** The hospitalization rate in urban Delhi (2,615 per lakh population, excluding childbirth) was significantly below the national urban average of 4,400 per lakh. This points to possible differences in health-seeking behaviour, accessibility of healthcare, or reporting patterns in Delhi compared to the rest of urban India.
- Utilization of Public Hospitals:** A notable 51.39% of all hospitalization cases in urban Delhi were treated in government health institutions, compared to the much lower all-India average of 32%. This suggests a relatively stronger reliance on public healthcare in the city, though it still leaves a large segment dependent on private care.
- Free Wards in Private Hospitals:** Access to free treatment facilities in private hospitals remained extremely limited—only 0.95% of total hospitalized cases benefited from free ward services in such institutions.
- Cost of Hospitalization:** The average expenditure per hospitalized case (including both medical and related non-medical costs) in Delhi was estimated at ₹25,553—higher than the ₹21,375 recorded during the 60th round in 2004. For patients treated in private hospitals, the average cost per hospitalization (₹25,850) was nearly four times the

average cost in public hospitals (₹6,120). This cost disparity underscores the heavy financial burden placed on households opting for private care.

- **Childbirth-Related Expenditure:** The average total medical expenditure per childbirth in urban Delhi was ₹8,205.
 - In public hospitals (urban + rural), childbirth costs averaged only ₹1,437 per case.
 - In contrast, childbirth in private hospitals cost an average of ₹19,863 per case—a difference of nearly 14 times.
- **Cost by Disease Type:** Among specific diseases, the highest average expenditure was for cancer treatment (₹56,712 per case), followed by cardiovascular diseases (₹31,647). These figures highlight the severe economic strain posed by chronic and life-threatening illnesses.
- **Health Insurance Coverage:** Health insurance coverage was alarmingly low. In rural areas, 80% of the population had no health expenditure support, and in urban areas, the proportion was even slightly higher at 82%.
- **Enrolment in Public Health Insurance Schemes:** Only 12% of the urban population and 13% of the rural population were enrolled in *Rashtriya Swasthya Bima Yojana (RSBY)* or similar schemes. Private health insurance coverage was negligible—among urban households in the highest income quintile, only 12% had private medical insurance, with even lower rates in other quintiles.

Interpretation and Implications

The findings reveal a troubling picture of healthcare access and affordability in Delhi. The city faces a unique set of challenges:

- **Low Hospitalization Rate:** The lower-than-average hospitalization rate may reflect barriers to access, underutilization due to high costs, or a preference for outpatient or informal care.
- **Heavy Reliance on Private Care:** While public institutions treated over half of all hospitalized patients—higher than the national average—the substantial proportion still opting for private care reflects perceived or actual inadequacies in public health facilities.
- **High Out-of-Pocket (OOP) Costs:** The sharp difference in treatment costs between public and private sectors illustrates why OOP spending remains high. In particular, childbirth and treatment for chronic diseases in private hospitals place extreme financial strain on households.
- **Limited Financial Protection:** With over 80% of residents lacking any health insurance, households are highly exposed to catastrophic expenditure in the event of serious illness. Even government schemes such as RSBY have low penetration, and private insurance is accessible to only a small elite.

- **Disease-Specific Economic Burden:** The cost of treating diseases like cancer and cardiovascular conditions far exceeds the financial capacity of many households, potentially leading to debt, asset depletion, or foregoing care altogether.

When combined, these factors make Delhi a **high-risk OOP payment zone**. The likelihood of *catastrophic health expenditures*—where medical costs consume an unsustainably large share of household resources—is significant. The phenomenon of *medical poverty* (where health expenses push families below the poverty line) likely exists but remains underrepresented in official poverty statistics.

Purpose of the Present Study

Against this backdrop, the current study aims to:

- **Quantify** the extent of OOP health expenditure in Delhi.
- **Assess** the degree to which these expenditures are catastrophic, particularly for households from lower socio-economic backgrounds.
- **Examine** the coping mechanisms households adopt, whether by diverting funds from essential needs, borrowing, selling assets, or avoiding necessary healthcare altogether.
- **Identify** risk factors that heighten financial vulnerability due to healthcare needs.

The focus extends beyond purely quantitative measures to also explore qualitative dimensions—how health-related financial shocks are experienced by real households and the strategies they use to manage them.

In summary, the NSS 71st round provides a critical empirical foundation for understanding Delhi's health financing landscape in 2014. The survey's evidence—low insurance coverage, persistent dependence on private healthcare, high treatment costs, inadequate safety nets, and the heavy economic burden of serious illnesses—underscores the urgent need for targeted interventions. Without reforms to enhance public healthcare capacity, broaden insurance coverage, and reduce out-of-pocket burdens, the risks of catastrophic expenditure and hidden medical poverty will remain a persistent challenge in the capital city.

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