

Uncontrolled Type 2 Diabetes Mellitus and Hypertension Exacerbated by Financial Hardship and Herbal Remedy Reliance: A Family Case Report

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This case study describes Mrs. CS, a 57-year-old grandmother with a 3-year history of Type 2 Diabetes Mellitus (T2DM), who came from a diabetic family and presented with blurry vision and fatigue. She was also diagnosed as hypertensive last year. She reported discontinuing all prescribed medications for five months, relying instead on decoctions of the Philippine serpentina plant (*Andrographis paniculata*) and the insulin plant (*Chamaecostus cuspidatus*) for blood pressure and glycemic control due to budget constraints. An HbA1c test revealed hyperglycemia (7.5%). This case highlights the critical public health challenge of medication non-adherence in T2DM patients, particularly those influenced by traditional herbal remedies. It emphasizes the significant risks of relying on unproven therapies, the resulting poor glycemic control, and the potential for severe microvascular complications like diabetic retinopathy. The report emphasizes the urgent need for comprehensive patient and family education regarding evidence-based T2DM management, the dangers of unsupervised medication cessation, and the importance of professional medical consultation to integrate any complementary therapies safely.

Key words: Type 2 diabetes mellitus, hypertension, *Andrographis paniculata*, *Chamaecostus cuspidatus*, diabetic retinopathy.

INTRODUCTION

The number of people with diabetes worldwide has increased by 600,000 between 2009 and 2019, resulting in a total projected figure of 4 million.^{1,2} The Philippines, like other countries throughout the world, is experiencing an increase in the number of people who are diagnosed with diabetes. There is a 7.6% prevalence of diabetes³, as reported by the International Diabetes Federation (2024). Currently, there are 3 main types of diabetes, one of which is type 2 diabetes mellitus (T2DM). T2DM is characterized by an imbalance between insulin levels and insulin sensitivity, resulting in an insulin deficit. Compared to T1DM, it is typically diagnosed in middle-aged individuals and is more delayed.⁴ A variety of factors cause insulin resistance, although it most typically results from obesity and age. T2DM was diagnosed in 16% of individuals in a cohort derived from a national nutrition survey after a 9-year follow-up period.^{2,5} Since T2DM is a chronic illness, continuing

medical care is necessary. Similarly, hypertension is the Philippines' leading cause of mortality.⁶ In a recent study, it was found that older Filipinos have a high prevalence of hypertension and a comparatively poor level of knowledge and treatment about the condition.⁷

This case report highlights the multifaceted challenges faced by a multi-generational family in a rural community in Barangay Bunuanan, Catbalogan City, with a specific focus on the critical health issue of Type 2 Diabetes Mellitus affecting the matriarch. Diabetes is a growing global health concern, particularly in low- and middle-income countries, where factors such as limited access to healthcare, financial constraints, and reliance on traditional medicine often impede effective disease management.⁸

The grandmother in this family relies primarily on herbal remedies and a vegetable diet instead of prescribed medication due to significant financial barriers. This scenario reflects broader socioeconomic disparities that impact health outcomes, highlighting the complex interplay between poverty, traditional health beliefs, and chronic disease management.⁹ This report aims to provide a comprehensive overview of the family's demographic, health, and socioeconomic status; identify key challenges; and propose a range of interventions to improve the grandmother's health and the family's overall well-being.

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The findings underscore the urgent need for integrated health and social support strategies in vulnerable communities.

Patient-Centered Care

Mrs. C.S. is a 57-year-old who is the matriarch of the C family, primary caregiver for grandchildren (when daughters are working), and decision-maker in health matters (traditional remedies). She is known to have a history of type 2 diabetes mellitus (T2DM) diagnosed approximately 3 years ago and hypertension last year. She also stated that her parents and siblings have T2DM as well. She lives with her two adult children and two grandchildren. She reports limited income and relies on her children, making prescription medication costs a significant burden. She is a non-smoker but occasionally consumes alcohol. Her diet primarily consists of rice, vegetables, processed meat such as chicken and hotdogs (since her grandchildren are picky eaters), and fish. She describes a high intake of sugary beverages and refined carbohydrates before her T2DM diagnosis, which she has attempted to reduce, but adherence is inconsistent because she consumes whatever food is available in their home, mostly unhealthy foods that her grandchildren pick.

Characteristics of Illness

The grandmother's illness started with a feeling of itch all over her body and excessive fatigue, and she felt she had osteoarthritis-like pain in her upper and lower limbs. And when she could no longer move like she used to, she got sent to the hospital, where they found out that she had type 2 diabetes. She stated that her parents and siblings also have the same illness. She reports generally fair control of her blood glucose levels with prescribed oral hypoglycemic and antihypertensive drugs (Metformin and Losartan) in previous years. However, due to significant budget constraints, she states she has been unable to purchase her maintenance medications since January 2025, and she also indicated that she is afraid that the medicines will harm her kidneys. Her chief complaint is the occasional fatigue and blurred vision. Instead of conventional pharmacotherapy, Mrs. C.S. has been actively using various herbal alternatives, including daily consumption of either Serpentina tea (*Andrographis paniculata*) or insulin plant (*Chamaecostus cuspidatus*) tea and weekly consumption of bitter gourd (*Momordica charantia*) dishes, which she believes are effective in managing her blood sugar. She also takes vitamin A-rich supplements daily, which were prescribed to her last year when she got a checkup done on her eyes, which she said helped with reducing the blurriness of her eyesight, along with weekly consumption of carrots. Despite these herbal remedies, she notes a progressive increase in symptoms over the past two months. These symptoms include generalized fatigue and blurry vision, which she describes as a persistent haziness, particularly affecting her ability to read fine print. She is concerned about possible cataract formation given the worsening vision. However, she denies any episodes of dizziness, chest pain, dyspnea, non-healing wounds, polydipsia, or polyuria. She attributes her current symptoms to "stress" due to financial incapacities and "old age" rather than poorly controlled diabetes.

Trajectory of Illness

The C family is at Stage 4 of the Family Illness Trajectory, Early Adjustment to Outcome, wherein the family members try to adjust their diet to support Mrs. C.S. However, the family continues to feel a sense of vulnerability and insecurity due to the inconsistent salary and the increasing cost of living due to inflation. This exacerbated the matriarch's inconsistent adherence to medications and ultimately led to the cessation of taking maintenance medications to save money.

Family-Focused Care

The C family is an extended family living in Barangay Bunuanan, Catbalogan City, which consists of six (6) members spanning three generations; however, only five of the family members currently live together since the youngest daughter married recently and lives separately with her husband, as illustrated in Figure 1. Mrs. C.S. had a series of miscarriages, one before and after the birth of her eldest daughter, and the last one was before the birth of her youngest daughter. The patriarch died of myocardial infarction in January 2014. The C family became an extended family in June 2014 after the second daughter gave birth to her first child. Daughter 1 is 32 years old, an elementary school teacher with an inconsistent monthly income due to the payment of loans. She is the primary income provider, manages daily household needs and purchases, and is aware of her mother's condition but struggles to prioritize medication costs over necessities. Daughter 2 is 31 years old and is a saleslady with a minimum wage monthly income, often inconsistent. She has two children, a son and a daughter. She primarily assists with household chores and childcare, prioritizes the needs of her children, and is generally supportive but limited in financial capacity to aid her mother's medical needs. Daughter 3 is 26 years old and has occasional odd jobs, currently a part-time post office employee, and also has inconsistent income. She also contributes to household expenses when possible, with limited financial contributions since she is starting a family of her own outside the household. Grandson is 10 years old, attends local elementary school, assists with minor household tasks, and appears healthy with a high metabolism. He had an allergic reaction to chicken meat due to excessive consumption. Granddaughter is 8 years old, also appears healthy, attends local primary school, and is known to be a picky eater.

The collective income, primarily from Daughter 1 and occasional contributions from Daughters 2 and 3, is meager and often insufficient to cover all basic needs, including food, utilities, and education for the grandchildren. The income source is irregular and low, making it difficult to allocate funds for non-immediate needs like chronic disease medication. Their home is adequate but lacks significant space for privacy or individual activities. The family has adequate access to healthcare; a local health center is available, but specialized medical consultations, diagnostic tests, and continuous medication supply are often costly or require travel to the city. The family's food security is often challenged, leading to reliance on affordable, high-carbohydrate foods rather than a balanced, diabetes-friendly diet.

Family Genogram

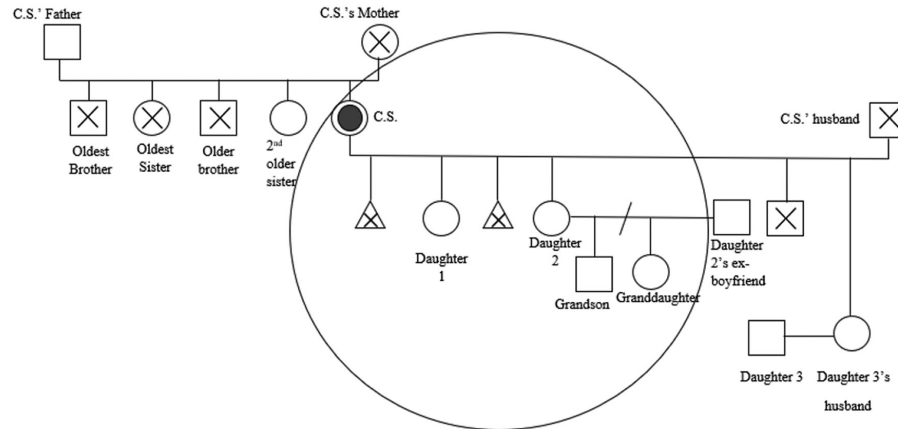


Figure 1. Family genogram of the three generations of the C family.

Family Ecomap

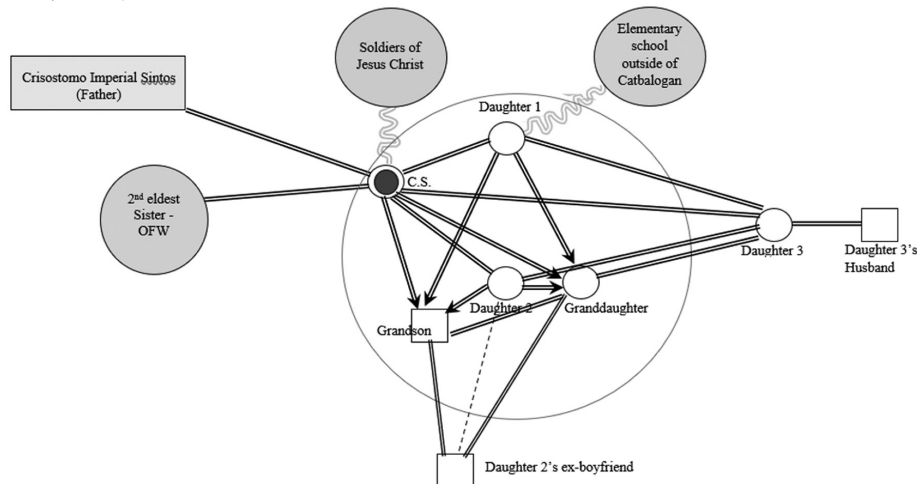


Figure 2. Family ecomap of the C family.

RESULTS

In order to find out the functionality of the C family, a Family APGAR (Adaptation, Partnership, Growth, Affection, and Resolve) survey was conducted.

Based on the interview and APGAR scores, all of the members of the C family consider their family as highly functional, where they can depend on each other in times of crisis.

The scoring for the SCREAM Family Resources survey is as follows: each item is scored on a 0 to 3 basis using the following key: strongly agree = 3, agree = 2, disagree = 1, and strongly disagree = 0. The interpretation for the SCREAM-RES Family Resources Survey includes: 0-12 = Severely Inadequate Family Resources, 13-24 = Moderately Inadequate Family Resources, and 25-36 = Adequate Family Resources. EACH DOMAIN: 0-2 = Severely Inadequate, 3-4 = Moderately Inadequate, 5-6 = Adequate.

Filipino Family APGAR Part I

		Palagi(2)	Paminsan-minsan (1)	Halos hindi (0)
A	Ako'y nasisiyahan dahil nakakaasa ako ng tulong sa aking pamilya sa oras ng problema.			
P	Ako'y nasisiyahan sa paraang nakikipagtalakayan sa akin ang aking pamilya tungkol sa aking problema.			
G	Ako'y nasisiyahan at ang aking pamilya ay tinatanggap at sinusuportahan ang aking mga nais na gawin patungo sa mga bagong landas para sa aking ikauunlad.			
A	Ako'y nasisiyahan sa paraang ipinadadama ng aking pamilya ang kanilang pagmamahal at nauunawaan ang aking damdamin katulad ng galit, lungkot, at pag-ibig.			
R	Ako'y nasisiyahan na ang aking pamilya at ako ay nagkakaroon ng panahon sa isa't-isa.			

Figure 3. The Filipino APGAR guide used to score C-Family's APGAR, where 7-10 = Highly Functional Family, 4-6 = Moderately Functional Family, 0-3 = Severely Dysfunctional Family.

Table 1. Consolidated Filipino APGAR score from the members of the C family.

C Family Members	A	P	G	A	R	SCORE	Interpretation
C.S.	2	2	2	2	2	10	Highly functional family
Daughter 1	2	2	2	2	2	10	Highly functional family
Daughter 2	2	1	2	2	2	9	Highly functional family
Daughter 3	2	1	2	2	1	8	Highly functional family
Grandson	2	2	2	2	2	10	Highly functional family
Granddaughter	2	2	2	2	2	10	Highly functional family

SCREEM-RES Survey

SCREEM FAMILY RESOURCES SURVEY (SCREEM-RES) – FILIPINO

Kapag may nagkakasakit sa aming pamilya ...	Matinding Sumasang-ayon	Sumasang-ayon	Hindi Sumasang-ayon	Matinding Hindi Sumasang-ayon
S1 Kami ay nagtutulungan sa isa't isa sa aming pamilya.				
S2 Natutulungan kami ng aming mga kaibigan at kasamahan sa komunidad				
C1 Ang aming kultura ay nagpapatatag ng loob ng aming pamilya				
C2 Ang kultura ng pagtutulungan at pagmamalasakit sa aming komunidad ay nakatutulong sa aming pamilya				
R1 Ang aming pananampalataya at relihiyon ay nakatutulong sa aming pamilya				
R2 Natutulungan kami ng aming mga kasamahan sa simbahan o mga grupong relihiyoso				
E1 Sapat ang naipong pera ng aming pamilya para sa aming mga pangangailangan				
E2 Sapat ang kinikita ng aming pamilya para sa aming mga pangangailangan				
E'1 Sapat ang aming kaalaman upang maintindihan ang mga impormasyon tungkol sa sakit.				
E'2 Sapat ang aming kaalaman upang maalagaan ang may sakit.				
M1 Madaling makakuha ng tulong medikal sa aming komunidad.				
M2 Natutulungan kami ng mga doktor, nars, at "health workers" sa aming komunidad.				

Figure 4. The SCREEM-RES Family Resources Survey.**Table 2.** The consolidated SCREEM-RES survey results are from the members of the C family.

C Family Members	S	C	R	E	E	M	TOTAL	INTERPRETATION
Mrs. C.S.	5	5	6	2	3	3	24	Moderately Inadequate Family Resources
Daughter 1	5	4	4	1	4	3	21	Moderately Inadequate Family Resources
Daughter 2	4	4	1	1	3	2	15	Moderately Inadequate Family Resources
Daughter 3	4	2	2	1	2	1	12	Severely Inadequate Family Resources
Grandson	5	5	6	2	0	3	21	Moderately Inadequate Family Resources
Granddaughter	5	5	6	2	0	3	21	Moderately Inadequate Family Resources

The Filipino Family APGAR and SCREEM-RES results showed that the dynamics of the C family are often cooperative and helpful. In the SCREEM-RES, the majority of the family members consider their resources to be moderately inadequate, while one family member considers that they have severely inadequate financial resources. However, despite the financial constraint, these imitations are not seen by the C family as a cause of family strife.

DISCUSSION

Family APGAR

The C family demonstrates remarkable internal resilience and functionality, as reflected by the consistently high scores (ranging from 8 to 10) on the Family APGAR instrument, as seen in Table 1. This interpretation places the family squarely in the “Highly Functional” category. Specifically, high scores across all domains (Adaptation, Partnership, Growth, Affection, and Resolve) indicate that the family members feel supported, can openly discuss problems, and are mutually accepting of each other’s pursuits. This strong foundational support system is a crucial protective factor in chronic disease management. Research indicates that high family functionality and social support significantly correlate with better emotional adjustment and improved self-care behaviors, including dietary adherence and medication compliance, among patients with T2DM.² This is also consistent with the study that highlighted how family members of older adult patients with type 2 diabetes, especially their adult children who live away from home, frequently provide self-management assistance to them.¹⁰ To enhance one’s habits and health results, diabetes self-management involves actively participating in self-care activities.¹¹ Important components of effective diabetes care include (1) diabetes education; (2) weight loss and exercise; (3) diet; (4) medication compliance; (5) stress and lifestyle changes; and (6) blood pressure control.¹² Maintaining a healthy diet, giving medicine, and attending doctors’ appointments are the most common self-management tasks that family members help with.¹³ The family’s cooperative dynamics suggest that interventions focusing on education and resource provision are likely to be successfully implemented and sustained, as the internal structure is already robust.

SCREEM-RES Survey

In contrast to its strong internal function, the family’s external resources are significantly constrained, as measured by the SCREEM-RES survey, as seen in Table 2. The majority of family members scored between 15 and 24, translating to Moderately Inadequate Family Resources. Daughter 3’s score of 12 highlighted a Severely Inadequate status, reflecting her recent marriage and external financial strain. The paradox of having a high function amidst low resources is a key finding of this case. The combination of a family’s or an individual’s occupation, level of education, wealth, and economic standing determines financial stress and socioeconomic status.⁹ A family’s general lifestyle and spending habits are influenced by their income.^{9,14}

The lowest scores were consistently observed in the Economic (E) domain (ranging from 1 to 2), explicitly confirming the primary concern of this case report. This severe economic constraint (E1 and E2 items) directly drives the matriarch’s critical decision to cease evidence-based pharmacotherapy in favor of unproven herbal remedies to “save money.” The substantial direct medical costs associated with T2DM in the Philippines confirm that this financial barrier is realistic and profound.² The inability to afford maintenance drugs forces the family to prioritize daily needs over long-term health, illustrating the potent influence of the social determinants of health on health outcomes.⁹ This is consistent with the studies that found the relationship between the financial burden of type 2 diabetes in Asia and problems associated with the disease.²

Secondary resource deficits were noted in the Educational (E’) and Medical (M) domains (scores ranging from 0 to 4). The low Educational (E) scores (E’1 and E’2) reflect the family’s knowledge gap regarding the efficacy and safety of T2DM treatments. This deficiency facilitates the grandmother’s reliance on traditional remedies, highlighting a failure of current health communication to bridge the gap between traditional beliefs and evidence-based medicine. In the Philippines, diabetes care is underfunded and faces financial, governmental, and resource constraints.¹⁵ The PhilHealth Primary Care Benefit package, which covers diagnostic testing and medications for chronic conditions, including type 2 diabetes and hypertension, is only accessible to sponsored and impoverished members.² However, accessing benefit packages requires substantial time and effort to complete the necessary paperwork and wait in line at Malasakit Centers, which are exclusively open during weekdays. This presents a logistical barrier, as Mrs. C.S.’s adult working children cannot take time off from their employment to assist her with this process. The matriarch cannot go alone and work on the paperwork due to her blurry vision. A study indicated that those with diabetes in the country were more likely to have visual impairment.¹⁶ The low scores in the Medical (M) domain (M1 and M2) indicate perceived difficulty in accessing adequate or trustworthy medical help, which further reinforces medication non-adherence and the seeking of non-conventional alternatives.

Synthesis and Implications for Care

The assessment clearly identifies the economic barrier as the principal factor undermining the matriarch’s health. The family is functionally prepared to support treatment, but they are resource-poor. The intervention must, therefore, be twofold: first, leverage APGAR strength and utilize the daughters’ strong sense of partnership and affection to implement affordable dietary changes and support adherence once subsidized medication is secured; and lastly, address SCREEM-RES deficits such as interventions must focus on securing external resources, namely, linking the family to free/subsidized medication programs and providing comprehensive, culturally sensitive health education to correct misconceptions regarding kidney damage and herbal therapy, thereby enhancing the Educational (E’) and Medical (M) resources. A study found that in the USA, Filipino diabetic patients with adult children who have higher diabetes knowledge are positively associated with greater family support involvement.¹⁷

Perspectives

Medical Student's Reflection and Learning

Observing the C family's case provided a profound shift from a purely biomedical focus to a socio-ecological model of health. As medical students, we are primarily trained to diagnose and treat diseases based on pathophysiology; however, Mrs. C.S.'s non-adherence was not a failure of diagnosis but a failure of the healthcare system to address her reality.

The key learning moments centered on the Social Determinants of Health (SDOH). Initially, encountering the discontinued medication and substitution with herbal tea felt like a purely clinical issue of patient non-compliance. However, applying the SCREEM-RES tool revealed that the "Economic" domain was the overwhelming barrier, effectively making poverty the "diagnosis" that prevented the treatment of T2DM. This realization underscores that treating a patient in the community requires a care plan that addresses Maslow's hierarchy of needs before focusing solely on metformin.

Furthermore, the case highlighted the critical importance of cultural humility and communication. The grandmother's fear that modern medicine would "harm her kidneys" and her trust in local herbs demonstrate a health belief system rooted in cultural context and financial logic. Our role shifted from prescribing to being an empathetic investigator and collaborator. Instead of dismissing the herbal tea, the approach became acknowledging her efforts, gently educating her on the limits of these remedies, and actively seeking subsidized alternatives to respect both her beliefs and her budget. The high Family APGAR score also taught us the asset-based approach: the family is functionally sound; it is the government's job to equip them with the resources they lack. This case solidified the understanding that effective family and community medicine demands resourcefulness, advocacy, and a deep appreciation for the social context of illness.

Patient's Perspective

Mrs. C.S.'s decision-making is heavily influenced by a mixture of economic necessity, experience, and community belief. When asked about her decision to stop Metformin and Losartan, she would say that "they're too expensive" and that she would rather choose to feed her grandchildren with the money that would have been used to buy a month's worth of maintenance pills. This framing reveals the moral dilemma she faces, effectively prioritizing the family's immediate food security over her own long-term health.

Her reliance on herbal tea is not merely a preference but a coping mechanism for perceived financial helplessness. She expressed a deep-seated fear of taking the maintenance pills since she heard from neighbors who are also diabetic that these pills are strong and will destroy their kidneys. This reflects a common misconception in the community that the medication itself is a risk factor, especially when paired with an inadequate diet, rather than the chronic, uncontrolled disease. Her choice to use *Serpentina* and the insulin plant is an attempt to exert agency over her illness using the only resources she can access freely, rooted in the collective health wisdom of her community.

Her perspective confirms the SCREEM-RES findings: the economic barrier creates emotional and psychological distress, leading to self-modification of evidence-based medical treatment.

CONCLUSION

Mrs. C.S., a 57-year-old female known to have type 2 diabetes mellitus, presented with symptoms consistent with uncontrolled hyperglycemia and possible diabetic retinopathy due to prolonged non-adherence to prescribed maintenance medications secondary to financial constraints, compounded by reliance on unproven herbal alternatives. The grandmother explicitly states that financial constraints prevent her from purchasing long-term medication. She expresses trust in traditional remedies, a common practice in many rural communities where access to healthcare and affordable medicine is limited. The daughters, while concerned, are unable to consistently provide financial support for her medication, given their precarious economic situations.

Mrs. C.S.'s case underscores the critical need for robust patient education and accessible healthcare services to counter misinformation regarding diabetes and hypertension treatment. Her reliance on herbal remedies instead of evidence-based medicine has led to significant hyperglycemia and concerning symptoms, placing her at high risk for severe complications. A multifaceted approach involving urgent medical evaluation, comprehensive patient and family education, and ongoing support is crucial to improving her glycemic and blood pressure control and overall health outcomes. Healthcare providers must not only prescribe effective treatments but also thoroughly assess and address socioeconomic barriers to care, actively seek financial aid solutions, and provide comprehensive patient education regarding the severe and progressive nature of diabetic complications. The barangay local government unit must also initiate a collaborative effort with the city's RHU in making healthcare more accessible and closer to the diabetic and hypertensive populations residing in the barangay, which includes a regular supply of maintenance medicines and provisions of blood glucose and blood pressure monitoring devices. Open communication about the limitations of herbal remedies and the imperative for evidence-based medical management is crucial to mitigate further disease progression and prevent irreversible damage.

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