

Primary health care as assessed by health professionals: comparison of the traditional model versus the Family Health Strategy

Avaliação da atenção primária à saúde por profissionais de saúde: comparação entre modelo tradicional versus Estratégia Saúde da Família

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ABSTRACT: Introduction: The Family Health Strategy (FHS) should be first-contact care in the Brazilian Health System. However, Primary Health Care (PHC) still encompasses two models: the FHS and the traditional health care facilities. The expansion of the FHS has been slow and heterogeneous in many cities, rendering a comparative evaluation of key quality-related elements of PHC models crucial. **Objective:** To compare the performance of PHC models as perceived by health professionals. **Methods:** A cross-sectional study involving managers and health professionals from PHC of a medium-size city in South-eastern Brazil. Data were collected by applying the Primary Care Assessment Tool. The performance was estimated through primary health care indexes (general and partial PHCI by attributes). Univariate polytomous logistic regression was performed to compare care model performances according to their attributes. Strength of association was estimated by odds ratio with 95% confidence interval. **Results:** Three managers and 81 health professionals participated in the study. The FHS had a better index rating than the traditional care model for general PHCI and for the attributes longitudinality, comprehensiveness, family focus and professional level. **Conclusion:** Although the FHS attained higher scores compared to the traditional model, it has not yet achieved the performance expected. This scenario points to the need for increased FHS cover and quality improvements at the existing units.

Keywords: Primary Health Care. Health Services Evaluation. Health Personnel. Brazil.

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Conflict of interests: nothing to declare – **Financial support:** Fundação de Amparo à Pesquisa do Estado de Minas Gerais - FAPEMIG through the Programa de Pesquisa para o SUS – PPSUS (Grant number APQ-03031-10).

RESUMO: *Introdução:* A Estratégia de Saúde da Família (ESF) deve ser o primeiro contato do Sistema Único de Saúde (SUS). Contudo dois modelos de atenção operam concomitantemente no âmbito da Atenção Primária à Saúde (APS): a ESF e o modelo tradicional. A expansão da ESF tem sido lenta e heterogênea em muitos municípios, tornando fundamental a condução de avaliações comparativas de atributos relacionados à qualidade dos modelos da APS. *Objetivo:* Comparar o desempenho dos modelos de atenção da APS de acordo com a percepção dos profissionais de saúde. *Métodos:* Estudo transversal com gestores e profissionais de saúde da APS do município de Divinópolis, Minas Gerais. Dados foram coletados por meio do *Primary Care Assessment Tool*. O desempenho dos modelos foi estimado por meio do Índice de Atenção Primária à Saúde (IAPS geral e específico). Regressão logística politômica univariada foi conduzida para comparação do desempenho dos modelos da APS de acordo com os atributos. A força da associação foi estimada por meio do *odds ratio* com intervalo de confiança de 95%. *Resultados:* Três gestores e 81 profissionais de saúde participaram do estudo. A ESF obteve melhor avaliação do que o modelo tradicional com relação ao IAPS geral e aos atributos vínculo, elenco de serviços, enfoque familiar e formação profissional. *Conclusão:* A ESF obteve escores superiores aos do modelo tradicional, entretanto ainda não atingiu o seu desempenho esperado. Esse cenário aponta para a necessidade de ampliação da cobertura da ESF e para a melhoria da qualidade das unidades de ESF existentes no Brasil.

Palavras-chave: Atenção Primária à Saúde. Avaliação dos Serviços de Saúde. Profissionais de Saúde. Brasil.

INTRODUCTION

The Brazilian Health System (Sistema Único de Saúde – SUS) was created in 1988 under the Federal Constitution and has since been reformed to consolidate public health care throughout the country. In this scenario, strengthening Primary Health Care (PHC) represented the main strategy to improve the quality and quantity of health care provided by the State, assuring the principles guiding the SUS.

The Family Health Program (FHP) was conceived in 1994 and in 2009 was adopted by government as a national model called the Family Health Strategy (FHS) to reorganize PHC nationwide¹⁻³. Since then the FHS has been made a priority through the establishment of federal budgetary mechanisms specifically for this model and also through initiatives to extend FHS coverage in medium and large urban centers⁴. However, the transition from the former model, represented by traditional health care facilities, over to the FHS is not yet complete in many cities³.

The traditional model and the FHS must uphold the SUS principles (provision of universal, equal and integral health care). There are a number of key differences between the two models, including the size of the population covered by each health unit and the structure of health teams. Besides the core team common to both organizational models (general practitioner, nurse, and nurses' aide or licensed practical nurse), the FHS team also has another key professional: the community health worker (CHW). This professional, drawn from the community itself, is responsible for regular home visits, establishing the link between residents and the FHS team, and helping to improve the latter's actions regarding health determinants⁵.

Numerous benefits of these professionals have been reported, particularly in low-to-middle income countries⁶. With regard to the population served, each FHS team is responsible for 4,000 persons at most *versus* 12,000 persons/team under the traditional model, in which there must be sufficient CHW to serve 100% of the registered population. The lower number of individuals covered per team, together with the presence of CHW, brings the FHS closer to its users⁵.

Based on evidence that high-quality PHC may have a positive impact on health indicators⁷, it follows that an innovative PHC model should provide better health outcomes. Comparative performance assessments of the FHS and traditional models by users, health professionals and managers have been carried out⁸⁻¹⁵. Quality-related key elements have been taken as a reference and adapted to the reality of the PHC in Brazil by validation with the Primary Care Assessment Tool (PCATool)^{7,16-18}. By estimating indexes, this tool can be used to evaluate the effectiveness of PHC models and further understanding on how health services can facilitate or hinder advances in the quality of care.

We have hypothesized that health professionals would rate FHS more highly than the traditional model, considering the investments of the government to extend the FHS model in Brazil. Thus, the aim of this study was to compare the performance, as assessed by the health professionals, of the two PHC care models in a medium-sized city located in the South-eastern region of Brazil.

METHODS

STUDY DESIGN

This was a cross-sectional study conducted to evaluate the performance of the PHC traditional model and FHS within the SUS in Divinópolis city, Minas Gerais state, Brazil, as assessed by health professionals. Additionally, in order to illustrate and complement the data, a description of the appraisal by managers directly involved with the PHC was provided.

This investigation was part of a larger study¹⁹. The study was approved by the Research Ethics Committees of the Educational Foundation of Divinópolis (58/2009) and of the Hospital São João de Deus (22/2011).

LOCAL AND POPULATION

According to the SUS in Minas Gerais state, each area is divided into health regions, in which one city serves as the reference. In the Mid-western region, Divinópolis is the reference city for higher complexity health actions and the catchment area encompasses 55 neighboring cities and covers an estimated population of 1,198,304 inhabitants²⁰.

Divinópolis is a medium-sized (213,016 inhabitants, 2011) city. The first PHC facilities were part of the traditional model and implemented in more populous neighborhoods. In 1996, the FHS facilities began to be implemented in rural areas and outlying districts¹⁵, where health care services were scarcer.

The health system in these regions can be characterized as fragmented with expanding FHS coverage. At the time of the study, the FHS served 27% of the population and comprised 17 teams, each made up by one general practitioner, one nurse, two nursing assistants and a varying number (3 to 11) of CHW. The traditional model included 15 PHC facilities. Currently, 51% of the city's population is covered by the FHS via 32 teams, whereas 11 conventional facilities remain.

For sampling purposes, three health professionals comprising one general practitioner, one nurse and one health assistant (CHW, nurses' aides and licensed practical nurses) from each of the 32 city health facilities from both models were invited to take part in the study. Health facilities with a full complement of health staff (at least one general practitioner, nurse, and health assistant) met the criteria for study eligibility.

Participant selection, based on a list of health professionals provided by the local authorities, was carried out by random sampling. In case of refusal, a second health professional of the same category at the facility was contacted and asked to take part.

The three PHC health managers in the city were also asked to participate. Since the number of managers interviewed was low and the PCATool version designed for managers does not specify the PHC model, the focus of this analysis was merely descriptive.

DATA COLLECTION AND VARIABLES

Interviews were performed between August and November, 2011. The instrument used was a pre-tested questionnaire that included socio-demographic variables and variables related to the PHC performance. The performance of the PHC was measured by the PCATool designed for managers and health professionals^{7,16-18}. It contains approximately 100 questions, divided into eight attributes (accessibility, longitudinality, comprehensiveness, family focus, professional formation, first-contact, coordination and community orientation^{7-9,12,16,17,21}), containing a variable number of questions. Within each attribute, respondents must answer on an increasing six-point Likert-type scale ranging from 0 (never) to 5 (always), with the exception of two questions on the accessibility attribute which adopt a decreasing scale and must therefore be converted for analysis. The PHC index (PHCI) was estimated based on the average points obtained for the responses to each attribute (partial PHCI) and to the eight attributes overall (general PHCI). The higher the PHCI, the better the evaluation of PHC performance¹⁶. PCATool was adapted and translated into Portuguese and exhibited good validity and reliability characteristics in its validation process for use in Brazil^{16,17}. Internal consistency measured by Cronbach alpha was 0.60–0.90 for the eight attributes and 0.60 for the overall scale. Correlation of the items with the overall scale

was 0.47 – 0.60¹⁷. Data collection was performed electronically using the Questionnaire Development System (QDS™), version 2.6.1.

DATA ANALYSIS

Descriptive analysis was performed by estimating absolute and relative frequencies. PHCI were estimated and compared according to PHC model and health professional categories using Student's t-test. Pearson's Chi-squared test was employed to compare the socio-demographic variables and PHC models.

Univariate polytomous logistic regression was also performed for each PHC attribute. This method is best suited to Likert-type outcome variables containing more than two categories²². The highest PHC performance index (always) was compared separately with lower performance indexes never/rarely, sometimes and very often for the PHC models, taking the FHS model as the reference category. Strength of the association was estimated by *odds ratios* (OR) together with 95% confidence intervals.

All analyses were performed using Stata software, version 11.0.

RESULTS

Twenty-one out of the 32 health facilities were included in the study, which together yielded 93 health professionals eligible for the study. One FHS unit located in the rural area was excluded for having an incomplete team of health professionals.

A total of 78 (83.9%) health professionals were interviewed. Losses occurred due to refusal (n = 2), maternity leave, absenteeism for health problems (n = 2), and non-response after three contact attempts (n = 8). No differences in losses for socio-demographic variables were detected between health professionals from the FHS and the traditional models (p > 0.05). Interview duration ranged from 30 to 60 minutes.

Participation of nurses and health assistants in the study was relatively homogenous, whereas a lower participation by general practitioners was observed. Participants were predominantly female and aged 46 years or older. Approximately 41% of the participants reported having post-graduate level education and 33% had practiced for 11 years or longer. No differences were found between interviewees from the traditional and FHS models (Table 1).

Table 2 depicts the results on performance of the PHC models according to the health professional category. The three categories rated the FHS model more highly on longitudinality and general PHCI. The FHS performed better for comprehensiveness according to general practitioners and health assistants, whereas nurses and health assistants ascribed higher scores to the FHS for family focus. The attributes community orientation and professional formation achieved higher scores for the FHS than the traditional model according to the health assistants.

The comparison of indexes between the PHC models showed that the FHS had better performance overall than the traditional model (general PHCI = 3.6 *versus* 3.2). Longitudinality (PHCI = 4.1 *versus* 3.3), comprehensiveness (PHCI = 4.1 *versus* 3.6), family focus (PHCI = 4.3 *versus* 3.3) and professional formation (PHCI = 3.4 *versus* 2.9) had better results compared to the other attributes (Figure 1). The first-contact attribute received the highest scores irrespective of the PHC model. Poor performance was observed for the accessibility attribute on both models, in which the traditional model had a slightly better rating than the FHS ($p > 0.05$).

Table 1. Distribution of socio-demographic variables according to Primary Health Care model.

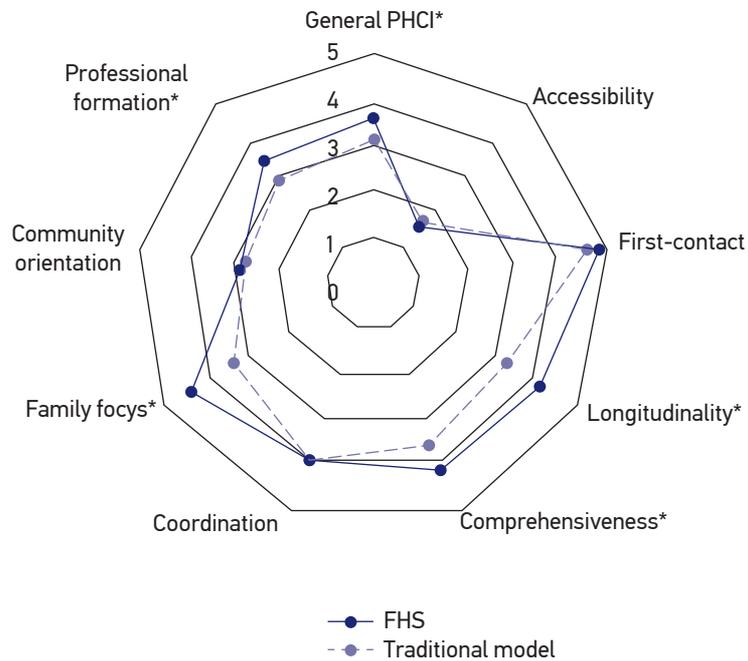
Variables	FHS (n = 40)	Traditional (n = 41)	Total (n = 81)	p-value ^a
	n (%)	n (%)	n (%)	
Professional categories				
Nurse	14 (32.6)	14 (36.8)	28 (34.6)	0.99
Health assistant ^b	16 (37.2)	15 (39.5)	31 (38.3)	
General Practitioner	13 (30.2)	9 (23.7)	22 (27.2)	
Gender				
Female	31 (77.5)	29 (70.3)	60 (74.0)	0.49
Male	9 (22.5)	12 (29.7)	21 (26.0)	
Age (years)				
≤ 35	18 (45.0)	13 (31.7)	31 (38.2)	0.22
36 – 45	10 (25.0)	8 (19.6)	18 (22.3)	
≥ 46	12 (30.0)	20 (48.7)	32 (39.5)	
Education				
High school	15 (37.5)	15 (36.5)	30 (37.0)	0.78
Graduate level	10 (25.0)	8 (19.5)	18 (22.2)	
Post-graduate	15 (37.5)	18 (44.0)	33 (40.8)	
Years practicing				
≤ 2	7 (17.5)	10 (23.3)	17 (21.0)	0.37
3 – 5	11 (27.5)	9 (21.9)	20 (24.7)	
6 – 10	11 (27.5)	6 (14.6)	17 (21.0)	
≥ 11	11 (27.5)	16 (40.2)	27 (33.3)	

^ap-value obtained by Pearson's Chi-squared test; ^bHealth assistant: community health workers, nurses' aides and licensed practical nurses.

Table 2. Comparison of primary health care indexes according to health professional category (n = 81) and PHC model.

Attributes	Professional category/PHC model								
	Nurse			General practitioner			Health assistant		
	FHS	Trad.	p-value ^a	FHS	Trad.	p-value ^a	FHS	Trad.	p-value ^a
Accessibility	1.8	1.9	0.29	1.6	1.7	0.36	1.6	1.7	0.18
First-contact	4.9	5.0	0.15	4.9	3.8	0.20	4.8	4.9	0.13
Longitudinality	4.2	3.3	0.00*	4.1	3.7	0.09*	4.0	3.1	0.02*
Comprehensiveness	4.0	3.7	0.06	4.1	3.7	0.04*	4.0	3.3	0.00*
Coordination	3.9	3.7	0.37	3.9	3.6	0.19	3.8	3.9	0.30
Family focus	4.3	3.3	0.00*	4.5	3.8	0.08	4.4	2.9	0.00*
Community orientation	2.5	2.6	0.35	3.0	3.4	0.15	2.9	2.2	0.02*
Professional formation	3.3	2.8	0.06	3.6	3.4	0.28	3.4	2.7	0.01*
General	3.6	3.3	0.01*	3.7	3.4	0.04*	3.6	3.1	0.00*

^ap-value obtained by Student's t-test; *statistically significant.



*p-value ≤ 0.00; FHS: Family Health Strategy; PHCI: Primary Health Care Index.

Figure 1. Primary health care indexes according to health care model (n = 81).

The results of the univariate polytomous logistic regression (Table 3) showed that the traditional model yielded higher OR estimates for longitudinality, comprehensiveness, family focus and professional formation attributes, indicating that the traditional model was associated with a worse performance. For longitudinality, there was a greater likelihood of obtaining a lower performance (sometimes) than higher performance (always) index (OR = 7.6; 95%CI 2.8 – 20.7) under the traditional model. The lowest scored category never/rarely could not be determined due to the low count distributions found in this category. No differences were detected for the other PHC attributes (data not shown).

Evaluations by health managers revealed a general PHCI = 3.5, and the following partial PHCI: accessibility (PHCI = 1.9), first contact (PHCI = 5.0), longitudinality (PHCI = 3.7), comprehensiveness (PHCI = 3.8), family focus (PHCI = 3.1) professional formation (PHCI = 3.7), coordination (PHCI = 3.7) and community orientation (PHCI = 3.0).

Table 3. Univariate polytomous logistic regression for comparison of Primary Health Care (PHC) performance and care models according to attributes.

Attributes	PHC performance ¹		
	Never/Rarely ² OR (95%CI)	Sometimes OR (95%CI)	Very Often OR (95%CI)
Longitudinality			
Traditional	Indeterminate	7.6 (2.8 – 20.7)	–
FHS	1.0	1.0	–
Comprehensiveness			
Traditional	Indeterminate	10.0 (1.1 – 94.0)	3.8 (1.4 – 10.0)
FHS	1.0	1.0	1.0
Family focus			
Traditional	Indeterminate	29.7 (3.5 – 249.7)	3.6 (1.2 – 11.2)
FHS	1.0	1.0	1.0
Professional formation			
Traditional	Indeterminate	4.7 (1.2 – 18.7)	2.3 (0.6 – 8.7)
FHS	1.0	1.0	1.0

FHS: Family Health Strategy; OR: *odds ratio*; CI: confidence interval; ¹Model separately compared the performance categories *never/rarely*, *sometimes* and *very often* with the category *always* (best performance) for all attributes, except longitudinality. For longitudinality, *very often* was taken as reference (best performance) due to absence of data distribution in this category; ²Indeterminate: OR could not be obtained for *never/rarely* due to the small number of observations in this category.

DISCUSSION

The present study entailed the analysis of quality-related key elements of PHC within the SUS to compare the performance of the traditional and FHS health care models. The FHS was ranked better overall and attained higher indexes only for four out of the eight attributes. These findings are in line with results of other investigations showing superior performance of the FHS on evaluation by health professionals or users^{8,10,12-14,23,24}. The performance of PHC as assessed by managers and health professionals could not be directly compared. However, both are in agreement concerning the poor performance on accessibility and community orientation attributes.

Longitudinality was a highly ranked attribute and possibly one of the main strengths perceived by professionals and also by users. Some studies have shown that professionals tend to rate this attribute higher than users^{25,26}, partly because they are responsible for implementing the health services. Other authors²⁷ have pointed out the importance of the evaluation of longitudinality and note that positive results should be expected, since it is a central aspect of the Brazilian PHC model. The family focus attribute of the FHS was also ranked highly, representing another category clearly perceived by health professionals and a service essentially centered on family users. Other national investigations have found similar results for longitudinality¹³ and family focus attributes^{12,13,23,25}.

The establishment of the FHS model in line with the SUS principles has led to a need for more qualified health professionals. Teams of health professionals from this model are commonly associated with a higher level of training¹³, probably due to the complexity of the activities in routine daily practice²⁸. Of note, given the hegemonic nature of the FHS provided for in the Primary Care Plan⁵, heavier investment in training these professionals could be expected. This is the case why the FHS has expanded, with consequent intake of new professionals requiring greater training, and also because these practitioners may face greater demands owing to their closer contact with the community.

Efforts towards training health professionals of the FHS model, particularly health assistants, have been made by the Brazilian Ministry of Health⁸, perhaps explaining the differences observed in evaluations of this attribute by health assistants relative to general practitioners and nurses. Additionally, CHW is a category existing only in the FHS, and they are often responsible for facilitating contact and communication with families, providing information on risk factors, as well as health and social problems of their members². Given that CHW constitute a large, separate category in the FHS, it may be the focus of more training programs. Notably, these professionals have no prior skills to perform the role, so municipal health secretariats are responsible for providing this training.

Our findings concerning the comprehensiveness of PHC were similar to results of other studies^{12,13,23}. This finding might stem from the greater effectiveness in provision of health promotion and prevention action by the FHS through programmed service demand prioritizing vulnerable groups, in contrast to the traditional model, which provides these actions mainly in response to spontaneous demand.

No other advances made by the FHS were evident for the remaining attributes assessed in the study, with the exception of community orientation, which was rated as better by the health assistants (but not by nurses or general practitioners). The PHC models could not be distinguished for their capacity to respond to community needs or to promote community participation in health¹⁶, demonstrating the ineffectiveness of health practices that are formulated for the community without considering its involvement in health decisions. These problems involving both FHS and traditional model may occur due to their concomitance, which can create a virtual competition or complementarity of the models, hindering the effective exercising of integrality²⁵.

The relatively good performance of first-contact, irrespective of care model, should be interpreted with caution, since the results found for this attribute and for accessibility seem to be conflicting. Whereas the first-contact attribute attained a PHCI > 4, accessibility had the lowest index, particularly under the FHS model. Even after two decades of SUS, which upholds universal access as one of its most important principles, the accessibility attribute was identified as the main shortcoming of the PHC in our study. When access to the services network fails, the PHC cannot play the role of gate-keeper of a universal health system, despite the efforts of professionals in this regard²⁶. Thus, the good performance of the first-contact attribute may have been limited those users who actually reached the health facilities, whereas the accessibility attribute evaluated the possibility of actual inclusion in the health system. Preliminary attempts to improve access to PHC services could include extending working time of health facilities as well as that of multi-professional teams, establishing scheduled visits during the weekend, and decentralizing drug dispensing through health facilities. Furthermore, greater virtual communication by phone or e-mail with users should further improve accessibility^{14,25}.

The establishment of health systems that act as effective networks is one of the challenges of PHC, in which a number of Brazilian cities have difficulties re-structuring and constituting an effective system of referral and counter-referral^{12,13}. The coordination attribute, which denotes continuity of patient care and integration with the other levels of health care⁵, attained low indexes for referral and counter-referral systems, with no differences between the models. Obstacles in referral and counter-referral, along with the different health care levels, could lead to an increase of diseases and their complications, requiring more complex levels of care to treat these cases²³. The prevalence of 36.7% hospitalizations for primary care-sensitive conditions was recently estimated for the city¹⁹. This high rate could be the result of the shortcomings in access to health care and in the referral and counter-referral system, precluding the treatment of health problems that can be prevented when treated by PHC in a timely and effective manner. Furthermore, these results might reflect those users who did not reach PHC as the first-contact, seeking other levels of health care.

In our study, we employed univariate polytomous regression, since it is an appropriate method to be applied to Likert-type outcomes²². Despite it, the results emerging from this analysis should be interpreted carefully, because the small sample size led to large confidence intervals. Nevertheless, this analysis yielded similar results to Student's t-test, revealing differences between the PHC models with regard to longitudinality, comprehensiveness, family focus and professional formation.

Our study revealed key findings, which might support health decision-making within the municipality and neighboring cities in the Mid-western area of Minas Gerais state. These data further contribute to other investigations by our group involving the assessment of PHC users who were hospitalized for ambulatory care-sensitive conditions^{15,29}. We should note, however, that some results probably cannot be extrapolated to other Brazilian cities given differences in health professional perceptions as well as disparities in characteristics of local health systems. In addition, changes occurring in health professional staff or in the PCATool over time could compromise our findings. Despite these limitations, we believe that our results are valid, since the concomitance of two PHC models operating in Divinópolis, as well as in many other Brazilian regions, remains^{25,26}.

In view of this, continuous assessment of PHC must be carried out to inform decision-making by professionals and managers, highlighting the strengths and weaknesses of each PHC model. Other tools besides the PCATool which is best suited for the Primary Care Plan Proposal^{18,30} can be considered adequate for performing quality analysis of a host of different aspects (economic, services, social support), as it is the case of the National Program for Access and Quality Improvement in Primary Care (PMAQ)³¹.

The city has been unable to attain the high level of FHS performance. Difficulties in establishing the FHS in medium-to-large cities on a national scale have been noted, in part due to the high demographic density and rapid evolution and development of medical technologies^{13,32}. Despite the autonomy of the city analyzed concerning planning and managing financial resources destined for public health care, the establishment of the FHS in Divinópolis has developed very slowly, achieving a modest growth of about 7.0% since the early 2000s. From the beginning of the study until now, FHS coverage has increased along with the workload within strategic traditional units.

CONCLUSIONS

This study, taken together with data on coverage of the FHS model in the city, highlights that increased FHS coverage should be accompanied by improvement in the quality of FHS facilities available. Provision of regular financial and human resources will be crucial to allow replacement of the traditional model as opposed to the FHS remaining an alternative PHC model in Brazilian cities. The FHS should be able to act as the gatekeeper of SUS, facilitate patient access to health services, and coordinate care across the different levels of the health system, thereby catering for community needs.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the Municipal Secretary of Health of Divinópolis, MG, health managers and health professionals for making themselves available for the study. The authors would also like to thank Prof. MD. Aline Lopes, of the Federal University of Minas Gerais (UFMG), for the valuable critical appraisal of the manuscript.

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Received on: 11/01/2016

Final version presented on: 02/11/2017

Accepted on: 05/18/2017