Does pay-for-performance (P4P) design matter? Evidence from the Brazilian P4P scheme

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ON BEHALF OF **EQUIPMAQ GROUP**

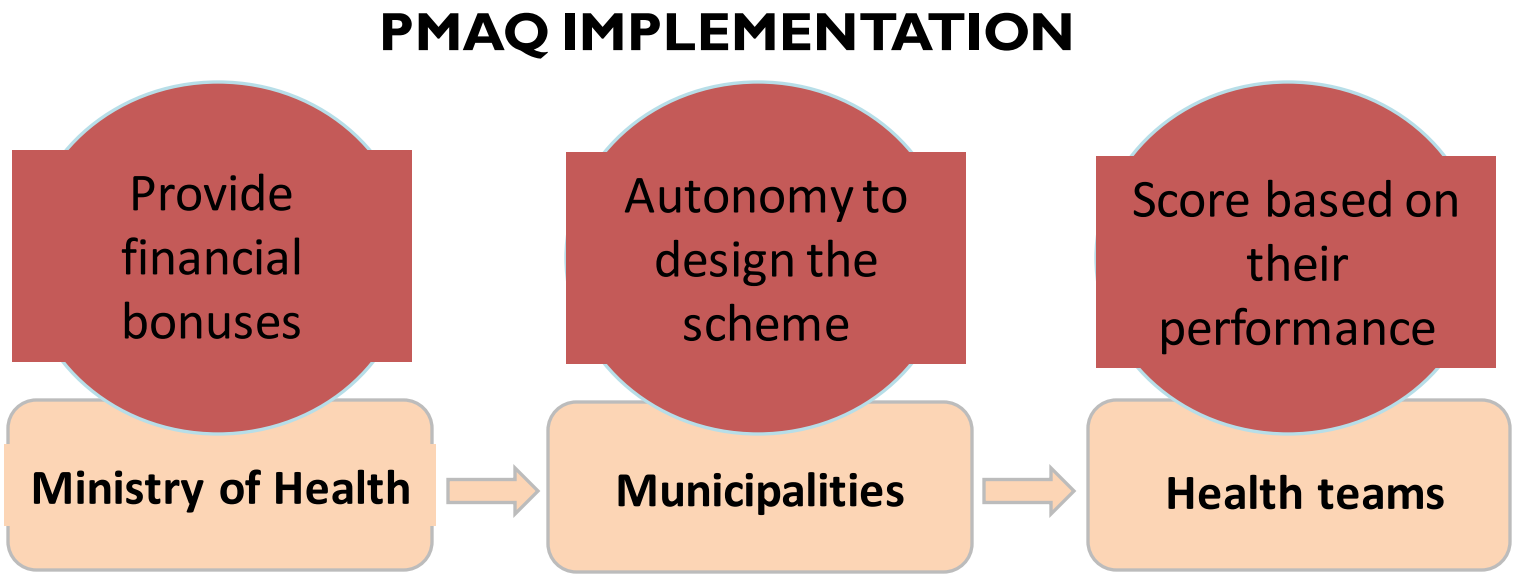
Motivation

- It is still unclear the effect of the P4P schemes on provider performance and health outcomes, especially in LMICs.

- In practice, P4P schemes vary substantively:
  - Programme design;
  - Implementation strategies.

PMAQ

- The Government of Brazil introduced the National Programme for Improving Primary Care Access and Quality (PMAQ) in 2011.



PMAQ Design (local decision)

How were financial bonuses used?

Staff bonuses and/or facility improvements (drugs, equipment, etc.)

Who was incentivised?

Individual or team

What was the size of the incentive?

Full or partial

What was the frequency of payments?

Defined or undefined

The study aims to

I. Characterise the main types of design implemented at the municipal level;

II. Explore whether and how these varied according to the characteristics of the municipalities;

III. Examine whether scheme design is associated with FHT performance.

Method

I. Main types of scheme design implemented

SOURCE: We conducted an online survey, which was sent by email to the head of health at the municipal level (from October to December 2019) - Round 3.

675 fully responses (12% of the municipalities):

- 302 (44.9%) did not pay staff bonuses (cluster 1)
- 373 (55.1%) paid staff bonuses (clusters 2-5)

STATISTICAL ANALYSES: cluster analysis was used to identify groups of municipalities that implemented similar P4P designs (k-means method).

Method

II. **Association between scheme design and characteristics of the municipalities**

SOURCE: Data from secondary sources, publicly available.

STATISTICAL ANALYSES: Multinomial logistic regression, including socioeconomic, demographic, political party and previous participation in PMAQ.

Method

III. Association between FHT performance and scheme design

SOURCE: Online survey from Ministry of Health – Round 3; data from secondary sources, publicly available.

Performance:

- Average of the absolute PMAQ scores (ranges from 0 to 100)
- Proportion of teams classified as better or best

STATISTICAL ANALYSES: Multiple linear regression, including socioeconomic, demographic, political party and previous participation in PMAQ.

Table: Number of municipalities by clusters and indicators, round 3 of PMAQ

	2 (n=45)	3 (n=101)	4 (n=105)	5 (n=122)	Total (n=373)
Size of incentive in terms of PMAQ resources					
1-20%	22 (49%)	0 (0%)	5 (5%)	0 (0%)	27
21-40%	23 (51%)	0 (0%)	19 (18%)	12 (10%)	54
41-60%	0 (0%)	52 (51%)	78 (74%)	89 (73%)	219
61-80%	0 (0%)	33 (33%)	2 (2%)	16 (13%)	51
81-100%	0 (0%)	16 (16%)	1 (1%)	5 (4%)	22
Providers incentivised					
Incomplete members of FHT/OHT	33 (73%)	77 (76%)	3 (3%)	0 (0%)	113
All members of FHT/OHT	10 (22%)	24 (24%)	23 (22%)	38 (31%)	95
All members of FHT/OHT and others*	2 (4%)	0 (0%)	79 (75%)	84 (69%)	165
Frequency of payments					
No definition	3 (7%)	2 (2%)	7 (7%)	0 (0%)	12
Low (per year)	6 (13%)	6 (6%)	36 (34%)	0 (0%)	48
Middle (from 2 to 6 months)	8 (18%)	30 (30%)	62 (59%)	10 (8%)	110
High (per month)	28 (62%)	63 (62%)	0 (0%)	112 (92%)	203

Note: *Others can include NASF and/or staff.

Municipalities were gathering in four clusters.

They represent four different empirical combinations of size of incentive, providers incentivised, and frequency of payments

Table: Associated factors with PMAQ clusters at municipal level using multinomial logit (n = 675), third round of PMAQ

	2	3	4	5
HDI	-8.776***	-17.117***	-13.753***	-11.036***
	(2.627)	(2.384)	(2.683)	(2.302)
Population size	-0.251	0.814**	0.908***	0.968***
	(0.791)	(0.331)	(0.281)	(0.285)
PMAQ funds per FHT	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Urban population	0.730	1.058	1.697**	0.800
	(0.926)	(0.690)	(0.752)	(0.641)
Party Affiliations	-0.286	-0.056	-0.236	-0.028
	(0.359)	(0.258)	(0.261)	(0.238)
Cycles	-0.095	0.133	0.398**	0.513***
	(0.203)	(0.152)	(0.160)	(0.143)
Constant	3.634*	7.979***	4.768***	3.183**
	(1.891)	(1.299)	(1.400)	(1.255)
Observations	675	675	675	675
Pseudo R-squared	0.064	0.064	0.064	0.064

†Cluster 1: Municipality did not transfer PMAQ resource to the team workers (reference)
Standard errors clustered at municipality level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table: Estimation results for PMAQ score and classification (best and better) using OLS (n = 675), third round of PMAQ

	PMAQ score	PMAQ score	PMAQ classification	PMAQ classification
PMAQ typology†				
2	5.527***	5.817***	0.107**	0.111**
	(1.416)	(1.384)	(0.054)	(0.052)
3	4.151***	5.708***	0.116***	0.146***
	(1.232)	(1.294)	(0.038)	(0.039)
4	5.852***	6.495***	0.088***	0.104***
	(1.044)	(1.054)	(0.034)	(0.034)
5	10.834***	10.848***	0.301***	0.306***
	(1.079)	(1.093)	(0.037)	(0.037)
HDI		20.742***		0.441*
		(7.935)		(0.231)
Population size		-0.561		-0.008
		(0.861)		(0.028)
PMAQ funds per FHT		0.001***		0.000***
		(0.000)		(0.000)
Urban population		-2.215		-0.094
		(2.330)		(0.073)
Party Affiliations		-1.063		-0.047*
		(0.834)		(0.025)
Cycles		1.285***		0.010
		(0.488)		(0.015)
Constant	57.714***	40.930***	0.149***	-0.131
	(0.634)	(4.677)	(0.016)	(0.129)
Observations	675	675	675	675
R-squared	0.136	0.221	0.107	0.140

Municipalities that implemented P4P designs based on disbursing of PMAQ resources to workers (clusters 2-5) were associated with higher performance.

Municipalities that disbursed higher proportion of PMAQ resources to a broader conception of primary healthcare teams with higher frequency of payments tend to improve performance the most.

Sensitivity analyses

We re-estimated the association considering:

- each indicator design feature separately – instead of the combination of the three indicators (clusters);
- the poor performance (as the proportion of teams classified as worst and worsen within a municipality);
- primary health teams' score at team level - this was conducted for the PMAQ clusters and the three indicators (clusters) separately.

Limitation

- We used self-reported information about the PMAQ (electronic survey), which is susceptive to memory biases.
- Our sample represents about 12% of the Brazilian municipalities - caution is needed when extrapolating the findings to other municipalities.
- We used the PMAQ score and classification calculated by the Ministry of Health, which are mainly based on structural and process indicators - They might not properly represent health outcomes to the users' PHC.

Final consideration

- This study identified five ways to implement the programme (PMAQ designs) at municipal level.
- Some characteristics of the municipalities could have influenced the decision about the PMAQ design, such as HDI and population size.
- We found potential increments on the PHC performance associated with those designs.
  - Municipalities that opted for disbursing PMAQ resources to workers (clusters 2-5) were associated with higher performance in primary healthcare.

Thank you!

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