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Review of performance-based incentives in community-based family planning programmes

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ABSTRACT

Background One strategy for improving family planning (FP) uptake at the community level is the use of performance-based incentives (PBIs), which offer community distributors financial incentives to recruit more users of FP. This article examines the use of PBIs in community-based FP programmes via a literature search of the peer-reviewed and grey literature conducted in April 2013.

Results A total of 28 community-based FP programmes in 21 countries were identified as having used PBIs. The most common approach was a sales commission model where distributors received commission for FP products sold, while a referral payment model for long-term methods was also used extensively. Six evaluations were identified that specifically examined the impact of the PBI in community-based FP programmes. Overall, the results of the evaluations are mixed and more research is needed; however, the findings suggest that easy-to-understand PBIs can be successful in increasing the use of FP at the community level.

Conclusion For future use of PBIs in community-based FP programmes it is important to consider the ethics of incentivising FP and ensuring that PBIs are non-coercive and choice-enhancing.

Key message points

- Performance-based incentives have been used extensively in community-based family planning (FP) programmes, with 28 programmes identified in 21 countries.
- Six evaluations of performance-based incentives were identified, detailing mixed results but suggesting that easy-to-understand incentives can be effective in increasing FP.
- Designing performance-based incentives requires careful attention to ensure incentives are ethical, non-coercive and choice-enhancing.

BACKGROUND

Community-based efforts to provide family planning (FP) information and services have been used to access hard-to-reach patients. This approach started in the 1960s in Indonesia, Korea, Taiwan and Thailand before broadening throughout Asia and Latin America during the 1970s and 1980s and into Africa from the 1990s onwards.[1]

Prior research on community-based FP describes mixed findings. One study found that a community-based approach to expand FP was cost-effective; however, programmes need to directly benefit community members to be effective.[2] Another study found that early community-based distribution (CBD) programmes have higher costs than clinic-based FP strategies,[3] although the database for the analysis was limited.

The payment strategy utilised by CBD FP programmes can positively impact overall FP programme costs, access and utilisation. A study in Tanzania examined the costs and number of visits associated with community-based agents that were paid salaries, given smaller allowances, and volunteers and found that increasing the remuneration reduced the costs per visit by increasing the productivity of the agents.[4] Another study found that programmes relying on volunteers were not the most cost-effective when analysing the mean cost per couple protection year (CYP).[5]

CBD programmes can also use financial incentives for FP distributors or adopters. Past programmes that gave financial incentives for voluntary sterilisation raised concerns that they could be coercive and

violate the rights of individuals and were stopped.[6 7] The 1994 International Conference on Population and Development established a framework for addressing FP that emphasised individual reproductive rights and women's informed choice on family size.[8 9] Subsequently, in 1998, the US Government introduced the Tiahrt amendment, stating that United States Agency for International Development (USAID)-funded programmes must offer comprehensive information on FP options/risks, and programmes are not allowed to establish FP targets/quotas, use incentives to encourage FP utilisation, or deny benefits to those not agreeing to use FP.[10]

More recently, some health initiatives have used 'performance-based incentives' (PBIs), similar to 'pay for performance', where money or other material incentives are provided to workers in return for completing a measurable action or exceeding performance targets.[11]

In 2011, USAID clarified that FP programmes using PBI principles are acceptable under the Tiahrt amendment, as long as they respect the values of voluntarism and informed choice of FP services.[12] However, incorporating PBI principles into FP programmes remains a challenge, as programmes try to find a balance between incorporating incentives that are effective but not coercive.

The existing literature details some useful information on community-based FP programmes and incentives. One review has summarised the evidence of several community-based FP programmes in Africa; however, this study did not consider the effectiveness of PBIs.[1] A Cochrane review looked at the effect of 'pay for performance' on non-FP health services and health outcomes, and found the current evidence base too weak to draw conclusions.[13] Another review focused on the use of incentives in FP programmes in eight studies, concluding that they generally had a positive impact on FP utilisation and reducing pregnancies.[14] While this study shows promise regarding the ability for incentives to influence contraceptive prevalence and fertility rates; the studies included in the review did not capture CBD incentives.[14]

No systematic review was identified that specifically examined the use of financial PBIs in community-based FP programmes. As such, the aim of this review is three-fold: (1) to identify where PBIs have been used in community-based FP programmes, (2) to describe the different types of PBIs employed in community-based FP programmes and (3) to summarise the existing evidence on the effectiveness of PBIs in community-based FP programmes.

METHODOLOGY

In order to identify community-based FP programmes that have used PBIs, searches of the peer-reviewed published literature and grey literature were conducted on 10–30 April 2013. The literature search was conducted in two phases. In phase one, database searches used keywords associated with PBIs, FP and community-based interventions. Search engines used include PubMed, Popline and Google Scholar, as well as organisational websites such as the World Bank, USAID, Population Council, Guttmacher Institute and the World Health Organization. For searches that yielded over 100 hits, the results were sorted by relevance and the first 100 hits were reviewed.

Phase two consisted of three research steps: (1) reviewing the references of obtained studies, (2) programme-specific searches for more information on identified programmes and (3) inquiring with experts on any potential additional information or programmes to be considered.

Abstracts were deemed relevant if the source appeared to describe a community-based FP programme with PBIs or the study appeared to review a set of FP programmes with potential for identifying a community-based PBI FP programme.

Included programmes are those focused at the community level and provide financial incentives to increase contraceptive use in their communities. Programmes were excluded if they met any of the following criteria: (1) focused on individual incentives to accept FP, (2) focused on facility-based incentives, (3) focused on HIV prevention and only offered condoms, (4) programmes were proposed but not implemented or (5) incentives were not financial or only covered expenses incurred by distributors.

The following information was extracted from each included programme:

1. Name, location, and dates of programme
2. Programme size
3. Community-based distributors (e.g. community health workers, midwives)
4. Type of FP being promoted [e.g. sterilisations, intrauterine device (IUD), condoms]
5. Incentive used (e.g. payment per referral, volume bonus)
6. Whether an evaluation of programme effectiveness was conducted.

If evaluation data were available, the study design, outcome variables, findings and overall conclusions were also extracted. Both qualitative and quantitative evaluation findings were examined; however, the evaluation had to focus on the specific use of PBIs in community-based FP programmes and not the overall success of a broader programme.

RESULTS

Types of PBIs in community-based FP programmes

A total of 28 community-based FP programmes in 21 countries were identified in the literature as having used PBIs. Online Supplementary Appendix 1 details the programmes' location, dates, size, type of FP and type of PBI. Fourteen of the identified programmes were located in seven countries in Asia. Another 10 programmes were located in Africa and four in Latin America.

The 1970s appears to have been the peak period for PBIs in community-based FP programmes, with 10 active programmes during that decade. A steady number of programmes were active since the 1980s, with seven programmes active in the 1980s and 1990s, and six programmes active since 2000.

CBDs are referred to by different terms, most typically field workers, community-based agents or distributors, canvassers and motivators. Five programmes specifically utilised midwives as the distributors.

The number of CBDs active within a PBI programme can be difficult to assess since many began as smaller pilot programmes that later expanded. Of the 28 programmes reviewed, 10 indicated fewer than 100 CBDs, six programmes appear to have between 101 and 1000 CBDs, and six programmes have more than 1000, with another six where the number of CBDs was not specified.

Most of the identified programmes provided more than one type of contraceptive method, although two programmes in India focused exclusively on sterilisation, one programme in Taiwan solely incentivised IUD use, and two focused only on pill use (Honduras and Sudan). The most common FP provided was hormonal contraception (pills), followed by condoms, IUDs, sterilisation and spermicides.

Overall, the most common type of PBI was a per unit sales commission for FP products sold by CBDs. Sixteen programmes identified in the review used this type of PBI, with 80% of African programmes and 100% of Latin American programme using this approach. Ten programmes operated with a referral payment made for FP referrals to clinics, typically for long-term FP methods. Another five programmes used a bonus system, where a base salary was augmented with top-ups based on performance. In Thailand, one programme used a community loan fund, where the amount of the loans available for agricultural and livestock development projects was tied to the contraceptive prevalence for the village. Another programme in Rwanda provided financial support to cooperatives established by community health workers, where the amount was based on the number of new users of FP in their area of operation.

Evaluations of PBIs

While many of the programmes in online Supplementary Appendix 1 were evaluated, most of the evaluation efforts focused on the effect of the overall CBD of FP and not specifically on the PBIs within the programme. Table 1 provides details on six evaluations that specifically examined the effectiveness of PBIs in community-based FP programmes. Three studies compared the effectiveness of CBDs with PBIs to those without, one study examined a programme before and after incentives were introduced, and two studies were qualitative interviews with FP acceptors or CBDs asking specific questions about PBIs.

The evaluations showed mixed results on the benefits of using PBIs in community-based FP programmes. Two studies had primarily positive findings. In the evaluation of the Taiwan Maximum Acceptance Study in the 1970s, women living in areas where field workers were given bonuses for each FP acceptor were three times as likely to have accepted an IUD in the past year (9% vs 3%) and almost twice as likely to have accepted the IUD, pill or condom (21% vs 11%) compared to those living in areas where the PBIs were absent.[15] A study in India found that CBDs reported a substantial increase in FP counselling after they were given the opportunity to retain sales commissions from FP commodities.[16]

A study in the Philippines compared controls operating on a quota system with three different PBI strategies: individual incentives for exceeding the quota, group incentives for exceeding the quota, and a per-acceptor payment rate. The per-acceptor payment strategy produced the highest level of performance, whereas the quotas with individual and group incentives were not statistically different from the control group.[17] Additionally, the per-acceptor rate had the lowest cost per CYP of the four groups.[17]

Other studies had less favourable findings on PBIs. A study in Columbia experimented with a sales incentive for supervisors who received a 10% commission after achieving a minimum sales goal through the distributors they supervised; however, there did not appear to be any positive effect.[18] Another study in Thailand[19] examined three types of CBDs: full-time salaried workers, full-time workers compensated according to their performance relative to other CBDs, and part-time volunteers. CBDs compensated based on performance had the lowest performance rate of the three groups.[19]

A qualitative study in Bangladesh indicated that while some incentives may be successful in increasing FP use, the potential for coercion exists as CBDs received 45 Taka to refer individuals for sterilisation.[9 20] Klitsch reported that while this amount was too low to have a substantial impact on governmental or non-governmental organisation salaries, the self-employed agents who referred individuals for sterilisation targeted lower-income individuals, who may be more susceptible to coercion.[21] Subsequently, the programme eliminated the referral payments.

DISCUSSION

Types of PBIs in community-based FP programmes

This review shows that PBIs have been used by several community-based FP programmes in Asia, Africa and Latin America since the 1960s. Two dominant programme models were evident: (1) sales commissions for commodities and (2) referral payments for women who use long-acting or permanent methods.

More than half of the programmes reviewed used the *sales commission model,* in which CBDs sell FP

Table 1 Evaluations of performance-based incentives in community-based family planning programmes

Study reference/ country/programme (study dates)	Study design	Findings	Conclusions/notes
Chang *et al.*[15] Taiwan/Maximum Acceptance Study (Summer 1971)	Cross-sectional comparison of 20 counties, 10 randomly selected with field worker incentives and 10 without	Acceptance rate of IUD among incentive areas was 9.0% compared to 2.9% in non-incentive areas Acceptance rate of all methods (IUD, pill, condom) was 20.7% in incentive areas compared to 10.7% in non-incentive areas	Immediate monetary incentives for full-time field workers may produce better results in FP acceptance in a short period
Phillips *et al.*[17] Philippines/Philippine Commission on Population (POPCOM) (March 1973–August 1973)	90 motivators under four-arm study: A Control with salary and quota point system B Lower base salary with individual performance bonus C Lower base salary with group performance bonus D Per FP acceptor rate	Mean total adjusted points: A=41.9, B=67.2, C=48.0, D=97.1 with only Group D having statistically significant differences from controls Salary cost per CYP: A=9.05, B=4.94, C=5.42, D=4.15	Overall, found that the per-FP acceptor rate approach was more successful and efficient than the use of salary with quotas or base salaries with performance bonuses
Porapakkham *et al.*[19] Thailand/Field workers (November 1971–October 1972)	39 workers under three-arm study: A Full-time salaried workers B Lower full-time salary plus incentive bonus C Part-time volunteers with expense payments	Compared percentage of non-FP users recruited by each arm: A=25%, B=18%, C=32% Compared number of new FP acceptors per 1000 eligible per month of field work: A=1.57, B=1.49, C =2.15	Authors write that Type B (incentive group) performed poorly compared to others due to confusing incentive structure, where performance bonus was based on relative performance to others in same field during same time period
Vernon *et al.*[18] Columbia/Profamilia (April 1984–March 1986)	Three CBD supervisors serving 70 CBD posts in 50 counties with population of 585 500 Cost-effectiveness study of introducing sales commission over minimum sales goals and before and after analysis of prevalence	Cost of wage incentives programme was US$4.20 CYP Prevalence of contraceptive use did not change substantially from baseline to endline for the areas with wage incentives; however, unmet need for contraception was reduced	The incentive programme did not appear to result in an increase in use of contraceptives
Klitsch[21] Bangladesh/ self-employed community agents and midwives (1987)	Qualitative interviews and focus group discussions with men and women who had been sterilised, along with non-sterilised controls matched by location, family size, and desire to have no more children	There was evidence that self-employed agents targeted lower-income men and women, who were more likely to give a monetary reason for being sterilised	Investigators recommended ending referral fees for sterilisation, which Bangladesh discontinued in 1988
Luoma *et al.*[16] India/ISMP (1999)	Qualitative interviews of 49 ISMPs after training to sell FP commodities	ISMPs who started selling commodities reported substantial increase in FP counselling	Qualitative responses indicate that financial incentive of sales commissions is the primary motivating factor for increasing FP counselling

CBD, community-based distribution; CYP, cost per couple protection year; FP, family planning; ISMP, indigenous systems of medicine practitioners; IUD, intrauterine device.

commodities and retain a portion of sales as revenue. The sales commission model of PBI is widespread in the practice of social marketing, and the programmes captured in this review are thus representative of a larger group of social marketing programmes using this approach.

Offering sales commissions to CBDs has been a particularly popular approach in Africa and Latin America. This model is advantageous in that it incentivises individual CBDs to provide FP at minimal programme costs. However, there are some potential problems with this model. First, where a programme is only incentivising sales commissions, CBDs may be more inclined to encourage women to use the short-term methods they are allowed to distribute over longer-term methods that would require a referral to a health centre. Second, the amount of the commissions are often too small to adequately incentivise retention of CBDs over time.[22] For example, an analysis of the Ghana CBD programme found that the average commission income was very small at approximately US$5.5 per year, and thus not a particularly useful incentive.[23]

The second most common type of PBI is the *referral payment model*, where CBDs are incentivised to refer individuals to clinics for FP methods, typically long-acting or permanent methods. This model was popular in Asia, although most of the programmes in the 1960s and 1970s were ended due to concerns around coercion, but some PBIs for referrals remain, such as the ASHA programme in India.[24] This model also has the potential of incentivising workers to promote one form of contraception over another, thereby violating women's rights to free and informed choice. Another drawback is the potential for fraud and the need for careful monitoring to ensure that

individuals being referred actually receive the FP method.

Of the 28 programmes reviewed, only five did not use some component of the sales commission or referral payment models. One programme in Bangladesh and Taiwan used a performance bonus that supplemented a base salary. Another programme in Thailand paid a retrospective performance payment relative to the performance of other workers.[15 19 25] A bonus approach has the advantage of applying to all methods; however, it may be challenging to monitor and verify.

The Thailand Community Loan Fund and Rwanda Community Health Worker programmes are unique in that the incentive payments do not go to individuals, but rather to other community-based organisations.[26–28] The challenge for these approaches is to construct incentives that are effective but not coercive, where one does not merely shift the coercive power to community leaders.

Evaluation findings

Few of the documents reviewed included evaluations of the effect of the PBI on outcomes. This finding is not surprising given that PBIs are typically introduced amidst several changes to a health programme, thus making it difficult to tease out the effect of the PBI outside of larger system-wide changes.[29]

The evaluations that were identified indicated mixed results on the effectiveness of PBIs to improve performance of CBDs. One lesson from the evaluations, however, is that more straightforward PBIs were more successful. The study in the Philippines demonstrated that a simple per-FP acceptor payment approach was more successful than a more complicated point-based quota system with bonuses.[17] Additionally, the authors of the Thailand study attributed the failure of the PBI to the confusing and complicated nature of the scheme.[19]

Future applications of PBIs

For future PBIs in community-based FP programmes it is important to determine in advance whether the PBIs selected contravene a rights-based approach. The Tiahrt rules governing USAID-funded programmes allows for PBIs if they respect voluntarism and informed choice and if the incentives are 'reasonable' and so do not lead to coercive behaviours.[12] For example, allowing CBDs to retain a small commission on commodity sales is usually considered a reasonable reimbursement for delivering FP services and is unlikely to result in coercion. In contrast, substantial referral payments for one specific type of would incentivise CBDs to steer clients towards one method, thus breaching the principle of informed choice. While these two examples may be fairly clear, many PBIs in community-based FP programmes will require careful consideration on whether they respect women's rights and generate voluntary and informed decision-making on FP.[7]

Another consideration is whether using PBIs is cost-efficient compared to other types of FP programmes. With or without PBIs, the costs associated with community-based FP programmes can vary substantially. Of the programmes reviewed, costs reported ranged dramatically from around US$4 per CYP in the Philippines and Columbia to upwards of US$30 per CYP in Zaire.[17 18 30] Adding PBIs into an existing community-based FP programme typically requires further training and monitoring, thus increasing costs. As such, programme managers should consider whether the benefits of PBIs will exceed the excess costs. Still, when examining programme costs, it is critical to account for total programme costs when comparing across programmes, as higher remuneration levels may yield more productivity.[2]

A further ethical consideration is whether it is appropriate to put CBDs, who typically are low-wage workers, on a less stable income by implementing a PBI system. This is a particular concern in areas where the FP services have reached a saturation level and recruiting new users will be increasingly difficult. While no prior discussion was identified in the literature on the ethics of PBIs as it relates to the FP distributors, it is an area for further reflection before implementing a PBI approach.

Further research is needed on whether PBIs embedded into community-based FP programmes are effective in improving the delivery of FP and reducing unmet need for FP, particularly for newer rights-based PBIs. Longer-term evaluations are also needed to assess whether the benefits from PBIs are maintained over time. Researchers in this area have noted that the impact of incentives can dissipate over time after the 'low hanging fruit' are captured within a community.[29]

Study limitations and conclusions

This study solely examined financial PBIs in community-based FP programmes, whereas several community-based FP programmes operate on a volunteer basis with non-financial incentives, either material or in terms of community status and prestige, are used as the inducement for participation and retention. An examination of whether and to what extent non-financial incentives are effective is an important area for further research. Another limitation of this study is that much of the information on PBIs in community-based FP programmes from the 1960s and 1970s was difficult to find and access and is therefore not included in the analysis unless it was in a peer-reviewed publication.

Overall, the findings from this study indicate that PBIs have been used extensively in community-based FP programmes and simple to understand distribution incentives appear to be the most effective. However, more research is needed on evaluating PBIs and ensuring they are choice-enhancing and helping to decrease unmet need for FP.

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Appendix 1: Identified Community-Based Family Planning Programs Using Performance-Based Incentives

Country/Program [references]	Time Period					CBDs	Program Size	Type of Family Planning					Type of Incentive				Incentive Notes
	1960s	1970s	1980s	1990s	2000+			Sterilisations	IUD	Hormonal	Spermicides	Condoms	Sales commission	Referral payment	Bonuses	Other	
ASIA																	
Bangladesh/Dias and self-employed agents [9,20-21]	x	x	x			traditional midwives (dais) & self-employed community agents	not specified	x	x					x			45 TK per sterilization
Bangladesh/Rural Advancement Committee [25]		x				community agents	101 agents	x	x	x		x			x		$2.00/month with 4 cents per each additional user
Bangladesh/NGO Service Delivery Program [31-32]					x	depot-holders, community women	pilot - 20 women, grew to over 6,000 women	x	x	x		x	x	x			50% commission on commodities profits and charge for referrals
India/Madras [33-34]	x	x				canvassers	~200 canvassers	x						x		x	10 Rs. to canvassers and also to village council
India/National Rural Health Mission [24,35-37]					x	ASHA - accredited social health activist	One per village with >1,000 people	x						x			150 Rs. for tubal ligation and 200 for vasectomy
India/ISMP* [16]				x	x	ISMP - indigenous system medical practitioners	2,250 ISMPs			x		x	x				Profits from the sales of commodities

Country/Program [references]	Time Period					CBDs	Program Size	Type of Family Planning					Type of Incentive				Incentive Notes
	1960s	1970s	1980s	1990s	2000+			Sterilisations	IUD	Hormonal	Spermicides	Condoms	Sales commission	Referral payment	Bonuses	Other	
Indonesia [33,37-39]		x	x	x		field workers from village family planning groups	>7,000		x	x		x		x			Paid combination of fixed salary plus incentive based on number of referrals each month
Pakistan/Midwives [39]	x					dias, traditional midwives	>36,000 in field in 1970		x	x	x	x	x	x			Monthly salary (Rs. 15) plus commission of 2.5 Rs. IUD referral and 80% value of subsidized commodities
Pakistan/Field-workers [33,39]		x				canvassers or field workers	large - grew over time		x	x	x	x	x	x	x		Bonus based on the number of couples in area who did not become pregnant during the year
Philippines/POPCOM* [17]		x				lay motivators	>3,000 in program, 90 in experiment		x	x				x	x	x	Tested individual bonus incentives, group bonus incentives, and individual per acceptor rate
Taiwan/Midwives [40]	x					midwives	34 midwives		x					x			20 $NT per referral coupon for IUD
Taiwan/Maximum Acceptance Study* [15]		x				field workers	83 field workers		x	x		x			x		$2.50 per IUD acceptor, $0.50 for pill/condom acceptors
Thailand/Field-workers* [19]		x				field workers	39 agents studied	x	x	x					x		Base salary with increment depending on performance relative to other field workers in a given month.

Country/Program [references]	Time Period					CBDs	Program Size	Type of Family Planning					Type of Incentive				Incentive Notes
	1960s	1970s	1980s	1990s	2000+			Sterilisations	IUD	Hormonal	Spermicides	Condoms	Sales commission	Referral payment	Bonuses	Other	
Thailand/CBIRD* [26-27]			x			PDA field workers	6 villages, initially	x	x	x						x	Community loan fund, where amount in fund is tied to village CPR.
AFRICA																	
Burkina Faso [41]				x		community agents	84 agents			x	x	x	x				A percentage of sales is kept by agents
Cameroon [42]					x	community-based services volunteer (VSBC)	239 VSBCs			x	x	x	x				50% profit margin from sales of commodities
Ghana [32]				x		community based distributors	>1000			x	x	x	x				40% profit from contraceptive sales
Kenya/Market Day Midwives [43]				x		midwives	38 midwives			x		x	x				Profit from sales
Madagascar/PSI [44]					x	agents communau-taires	not specified			x	x	x	x				50% profit margin from sales of commodities
Mali [45]				x		health promoters	22 in total				x	x	x				20% of price of commodities kept by promoters
Rwanda [28]					x	CHWs	not specified			x		x				x	Financial support to CHW-established cooperatives based on the number of new users of FP

Country/Program [references]	Time Period					CBDs	Program Size	Type of Family Planning					Type of Incentive				Incentive Notes
	1960s	1970s	1980s	1990s	2000+			Sterilisations	IUD	Hormonal	Spermicides	Condoms	Sales commission	Referral payment	Bonuses	Other	
Sudan [46]			x			village midwives	pilot: unspecified number			x			x				$0.25 per pill packet sold
Tanzania/Population and Health Service [47]				x		community-based agents	24 agents	x	x					x			1000 TSH for every referral for long-term methods
Zaire/PRODEF [30]			x			community-based distributors	increased over time ~300 by 1989			x	x	x	x				Commission, typically 30% of sales
LATIN AMERICA																	
Columbia/Profamilia [18]			x			CBD instructors	Pilot - 3 instructors			x	x	x	x				Commissions for goods sold over a minimum threshold, 10% value of goods
Guatemala/APROFAM [48]		x				community-based distributors	> 500			x	x	x	x				Distributors allowed to keep a percentage of proceeds from sales
Honduras [49]		x				nonmedical personnel	40 distributors			x			x				Sales commission
Peru/Profamilia [50]			x			community-based distributers	~250 distributors			x	x	x	x				80% commission on all sales

***I**ndicates the program has an evaluation discussed in Table 1.

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