



Challenges of PMTCT and MCHS Integration in Indonesia, Analysis by Integration Analysis Framework and CFIR

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Abstract

Integration was strategy of PMTCT (Prevention of Mother to Child HIV Transmission) and MCHS (Mother and Child Health Services) since 2006. This systematic review explored integration level between PMTCT and MCHS. Literature searched from June 2015 to January 2016 through Google, Google Scholar, University Library Website, Portal Garuda, ProQuest, PubMed and 90 institutions in Jakarta. Keywords were PMTCT, HIV Mother, PPIA HIV Evaluation and HIV PMTCT Evaluation. We yielded 157 literatures from 1995-2015. Research should be done at Public Primary Health Care (PHC), discussed PMTCT implementation, and captured perspectives of staffs or decision makers. Thematic analysis was done using Atun's Integration Analysis Framework and CFIR. We included 7 studies. No study explored overall dimensions of integration, especially planning function. Challenges were resources, execution, needs of patients, networks and communications, policies, leadership, and access to information. Only 4 studies showed PMTCT results. Coverage of first visit counseling was 9-100% and percentage of pregnant women tested was 3.9 -60%. PMTCT integration was partial. Integration was not a sole solution to results. Planning should be done together with regional and local level, involving stakeholders to disseminate PMTCT information, increasing ownership and leadership. We proposed Atun's Framework and CFIR for further research.

Introduction

HIV/AIDS is one of the global burden diseases in the world. In 2012 to 2015, the number of new infections in India, Thailand, Vietnam and Myanmar had decreased. However, Indonesia had increased number of cases (620.000 increased to 690.000 or prevalence rate 0.4 to 0.5), including women (220.000 increased to 250.000, or 35% to 36%) and children (14,000 to 17,000, or 2.2% to 2.5%). This situation needs synchronization with coverage of antiretroviral therapy (ART). Total ART coverage in Indonesia has been increased (6% to 9%), except for pregnant women (15%

to 9%). These data suggested attention should be put especially in maternal and child groups .

WHO, UNAIDS and Government of Indonesia had launched integration of PMTCT and MCHS since 2006 through four prongs: 1) Prevention of HIV transmission among reproductive aged women, 2) Prevention of unplanned pregnancy among positive women, 3) Prevention of HIV transmission from positive pregnant women to their babies, 4) Providing psychological, social and care support to positive mothers, her infant and family (Kementerian Kesehatan RI, 2013).

In 2010 and 2012, only 0.25% and 0.5%

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of pregnant women attending HIV counseling and testing and only 3.6% and 2.4% of them receiving ART. This number is inversely proportional to high MCHS coverage, which reach 95.4% (for first visit) and 83.5% (for fourth visit). This gap indicates miss-opportunity. Many HIV-positive pregnant women do not know their status, while in fact they have come to MCHS.

Atun's Integration Analysis Framework developed by Atun (Atun, 2004) is recommended due to its compliance with the definition of integration and health system functions (Atun, 2010b). The Framework for Consolidated Framework for Implementation Research (CFIR) is one of widely used frameworks that explored the factors influence the implementation strategy (Damschroder, 2013, Damschroder, 2009). This systematic review therefore would like to explore integration level between PMTCT and MCHS, and to reflect its challenges at the public Primary Health Center (PHC) in Indonesia based on two frameworks above.

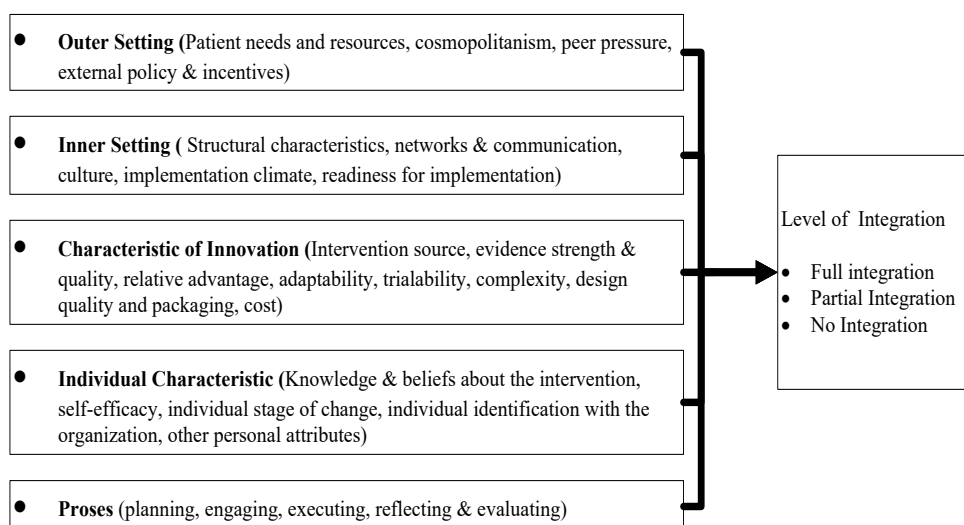
Method

We searched for literatures during June 2015 to January 2016 from Google, Google Scholar, website of the Directorate General of Higher Education (Portal Garuda), ProQuest, PubMed, Website of University Library in Indonesia, Library of Research and Health Development Institution of Ministry of Health Republic of Indonesia, and National Library

of Indonesia. We also corresponded with Midwifery Academies, Nursing Academies, High Schools of Health Science, Faculties of Medicine, Faculties of Public Health, National Population and Family Planning Agency (BKKBN), Sub Directorate of AIDS and Sexual Transmitted Disease of Ministry of Health Republic of Indonesia, Sub Directorate of Maternal and Child Health of Ministry of Health of Indonesia and several NGOs (Non-Government Organizations) located in Jakarta (total 90 institutions). Keyword were PMTCT, HIV Mother, PPIA HIV Evaluation and HIV PMTCT Evaluation. We added word "Indonesia" when using keyword in English.

Literatures were reselected according to several criteria: it had to be a research, coconducted at public PHC located in Indonesia, discussed evaluation or implementation of PMTCT and captured perspective of service staffs or decision maker.

We used Microsoft Excel program to assist the data analysis. Data on integration were extracted using Atun's Framework (Atun, 2010b, Atun, 2004). This framework analyzes integration through the extent to which health system functions were integrated (Atun, 2010a, Atun, 2010b). Governance function includes regulatory mechanisms, accountability, reporting and performance management system. Financing functions includes financing through existing or more general finance processes. Service delivery functions related



Scheme 1. Conceptual Framework for Systematic Review

to structure and organization of consumer services (human resources, infrastructures, service integration, referral system and procurement management). Planning function includes needs assessment, prioritization, capacity building and resource allocation. Monitoring and evaluation function include shared indicators, data collection, recording, analysis and reporting system. Demand generation functions includes incentive system, or approaches to health promotion at the individual and population levels (Atun, 2010b). Integration is grouped into three levels: full, partial and no integration. Full integration occurs when all functions are performed in the same structure. Partial integration occurs when the function can be performed by two different structures that coordinate with each other. No integration means the two programs have different structures and activities that are done separately (Atun, 2010a).

CFIR incorporates various contextual factors that affect implementation. This framework consists of 5 dimensions (Scheme 1) (WHO & TDR, 2014). We used CFIR to extract data on factors influencing PMTCT integration (appendix 1).

Results and Discussion

There were 35 literatures (38.9%) gathered from correspondence with institutions. We did not get any literatures on

PMTCT from 45 institutions (50%) and the rest (10 institutions) did not respond to our letter (11%).

Table 1. Number of Institution Having Literatures on PMTCT

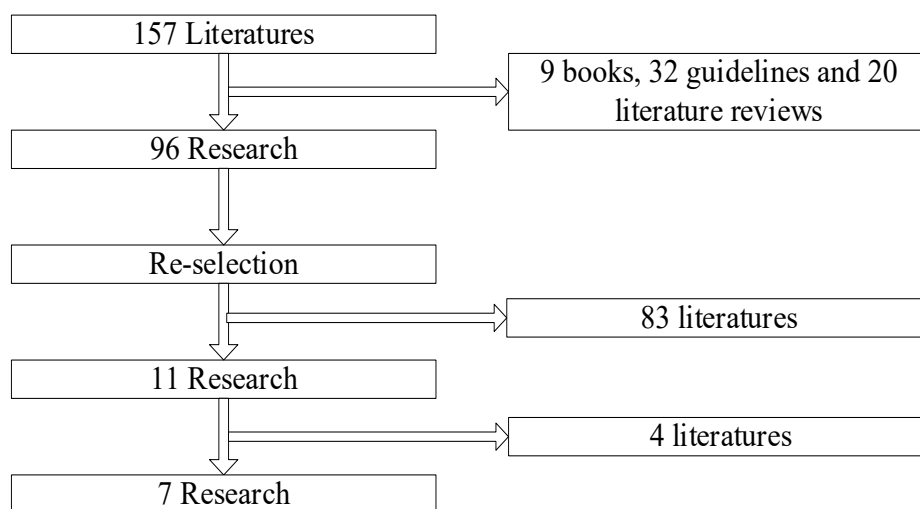
Literatures	n	%
Yes	35	38.9
No	45	50.0
No Respond	10	11.1
Total	90	100

Some of institution required the researcher to come to the institution which was located outside Jakarta, therefore grouped as “No”. The study selection process was presented in the form of an adapted PRISMA flow-diagram (Scheme 2). We generated 157 literatures from 1995-2015, consisting of 96 studies (61.1%), 9 books (5.7%), 32 guidelines (20.4%) and 20 literature reviews (12.7%). At the end, we yielded 7 studies.

Most of studies were qualitative study. We included published studies and grey literatures (thesis, dissertation or research report) (table 2).

None of studies used integration analysis framework to measure the integration of PMTCT service (Table 3).

PMTCT was coordinated or separately governed across programs (Lisbet, 2009,



Scheme 2. Literature Searching Process

Table 2. Characteristic of Studies

No	Authors (Year of Publication)	Location	Objective	Conceptual Framework; Study Design	Data Source and Data Collection	Sampling Method	Analysis
1	Widiyasari, E. (2014).	Surabaya City, East Java	Explore knowledge, attitude and perception of midwife on socialization process, human resources and leader support	Lawrence Green theory (Precede and Proceed); Explorative study	2 PHC; In-depth interview to 4 Midwives, 2 Heads of PHC and 1 Staff from Basic Health Service unit; FGD with 12 pregnant women.	Purposive*	Content analysis
2	Samaran, E., Shaluhayah, Z., Sriaatmi, A. (2013)	Sorong City, West Papua	Explore the implementation of PMTCT program	Lawrence Green Theory (predisposing, enabling and reinforcing factors); explorative study	±In-depth interview with Coordinator of Midwives, Head of PHC, Head of MCHS and Head of Health Service Unit; FGD of pregnant women.	Purposive*	Content analysis
3	Budisuari, M. A., Mirojab, A. (2011).	Surabaya City, East Java	Investigate implementation of PMTCT policy	NA; Case study	±In-depth interview with Service Staffs, Policy/Decision Maker in PMTCT program; Policy documents	Purposive*	Descriptive analysis
4	Pujiastuti, E. R. (2011).	Sidoarjo Regency, East Java	Describe the implementation of integration of PMTCT program	Logical framework (Health system framework); Descriptive Study	2 PHC; In-depth interview with 2 Heads of PHC and 2 Midwives; FGD with 16 Heads of PHC and 15 Coordinators of Midwives; Output and human resources data; Policy documents.	Quota sampling	Comparative analysis to literatures
5	Tarigan, I. U. et al. (2011)	Indonesia	Evaluate input, implementation (process) and policy on PMTCT	Logical framework (Health system framework); Implementation research	±6 Provinces; In-depth interview with 1 Disease Prevention Coordinator, 2 MCHS Coordinators and 1 Basic Health Services Coordinator, 6 staffs from Provincial Health Offices, 6 staffs District Health Offices, 6 staffs of Hospitals, 12 staffs of PHC; FGD with 12 technical staffs; Observation; Policy documents.	Purposive*	Content analysis
6	Warouw, N. H. (2010).	Jayapura City	Describe the utilization of PMTCT program by pregnant women	Andersons' Utilization Framework; Case study	1 PHC; In-depth interview with 6 PMTCT staffs and 6 pregnant women; Observation; Output data; Policy documents	Purposive*	Content Analysis
7	Lisbet. (2009).	Jayapura City, Papua	Evaluate PMTCT program	Logical framework (Health system framework); Descriptive study	1 PHC; In-depth interview with 6 staffs and 5 pregnant women; Observation; Output data, Policy documents	6 staffs as total sampling and 5 pregnant women as accidental sampling	Coding, axial coding, data categorization, narrative analysis

±: number of PHC was not mentioned; *: selection criteria was not mentioned; NA: not mentioned
FGD: Focus Group Discussion

Table 3. Health System Functions Discussed in Studies

Author, Year of Publication	Health System Functions					
	Governance	Service Delivery	Monitoring and Evaluation	Planning	Demand Generation	Financing
Widiyasari, 2014		X	X		X	
Samaran, 2013	X	X	X		X	X
Budisuari, 2011	X	X	X		X	X
Pujiastuti, 2011	X	X	X		X	X
Tarigan, 2011	X	X	X		X	X
Warouw, 2010	X	X			X	X
Lisbet, 2009		X			X	

Table 4. Integration of PMTCT and MCHS

Integration of PMTCT and MCHS	
Function	Level
Governance	Partial
Service Delivery	Partial
Monitoring and Evaluation	Partial
Planning	Na
Demand Generation	Partial
Financing	Partial
General	Partial

Na= non-applicable

Warouw, 2010, Tarigan, 2011). Provincial Health Office, Social Service and Third Parties provided delivery service and postpartum support (Budisuari, 2011). There was no formal agreement, integrated teams (Budisuari, 2011, Tarigan, 2011, Samaran, 2013) and clear job description on PMTCT (Samaran, 2013). At central level, each of program coordinator independently translated PMTCT regulation into activities required (Tarigan, 2011). We did not find complete information on performance management system.

PMTCT had incomplete and different services, schedules, rooms and staffs from existing programs. Outreach services for husbands (Budisuari, 2011), post partum services (Lisbet, 2009, Warouw, 2010, Budisuari, 2011) and pre/post test counseling (Lisbet, 2009, Warouw, 2010, Samaran, 2013, Widiyasari, 2014) were not fully provided. PMTCT service was given twice a week (Warouw, 2010) and still focus on key population (Budisuari, 2011, Tarigan, 2011, Widiyasari, 2014) or risk population (Widiyasari, 2014). Similar situation was found by Demartoto, A., et al in Surakarta that PMTCT program only emphasizes on

women as the single beneficiary of this service (Argyo Demartoto, 2017).

Only 18.8 % public PHC recorded PMTCT data due to unclear information (Tarigan, 2011). Some PHC used different or separate forms than MCHS (Tarigan, 2011). Third parties used different operational definition that produced different results (Tarigan, 2011).

None of studies explained integration in planning function. Important aspects of planning is whether there is integrated needs assessment, priority setting, capacity planning and resource allocation (Atun, 2010b). Some information indicated that planning had not performed properly. The lack of training, number of human resources and budget could reflect the lack of joint planning between PMTCT and MCHS.

All of studies discussed demand generation function. Health education was irregular (Lisbet, 2009, Warouw, 2010, Tarigan, 2011, Samaran, 2013) and given by midwife (Widiyasari, 2014, Tarigan, 2011, Samaran, 2013), PMTCT team (Budisuari, 2011) or through coordination between programs or

sectors (Lisbet, 2009). Some studies showed important roles of regular health education to increase knowledge and motivation of staff to do prevention (Isni, 2016, Octavianty, 2015). Problems also found in community mobilization (Lisbet, 2009, Budisuari, 2011) and men empowerment men (Lisbet, 2009), which indicated PMTCT emphasis more to women than their partner (Argyo Demartoto, 2017).

Financing for PMTCT was funded from third parties (Warouw, 2010, Tarigan, 2011, Samaran, 2013), Regional Expenditure Budget (Provincial or City Level) and Operational Health Assistance Budget (*BOK/Bantuan Operasional Kesehatan*) (Tarigan, 2011, Samaran, 2013). Third parties supported 80% of financing for certain regions (Warouw, 2010, Tarigan, 2011, Samaran, 2013). No special budget allocation for PMTCT at local government funds. Budget for HIV program was about 1.2% of total local government funds (Tarigan, 2011). This condition is still found in 2015 study done by Demartoto, A., et al in Surakarta (Argyo Demartoto, 2017).

PMTCT integration would increase number of women tested and treated, shorten time to therapy, decrease HIV transmission and increase patient satisfaction (Li, 2013, Asefa, 2014, Nigatu, 2011). Integration would reduce stigma, discrimination and cost (WHO, 2016). Coverage of first visit counseling ranged from 9% to 49.42% . Other study showed wide variation for number of first visit counseling (11% to 100%) and number of pregnant women tested (0% to 60%) (Widiyasari, 2014). Samaran (2013) found 50.4% for first visit counselling and 85.8% for HIV test (Samaran, 2013). Lisbet (2009) found 51% mother were tested (Lisbet, 2009). These results showed wide variation of PMTCT output within similar level of integration, indicated integration is not a sole solution to PMTCT results.

The challenges of PMTCT and MCHS integration found in studies were reflected to CFIR (Table 5). We found limited information on PMTCT characteristics that indicated limited attentions are put on the amount and quality of information PMTCT at initial phase. Intervention that perceived as strongly evidenced, simple, and

good, had more advantages than other or no intervention, compatible with norm and value of implementer, and were more likely to success in its implementation (Greenhalgh *et al.*, 2004, Rabin *et al.*, 2008, Nugroho, 2007). PMTCT cascade involved comprehensive four prongs throughout several age group and services. Initial information how to adjust/coordinate the cascade was crucial to prevent inconsistent results. (Hardon, 2009, Nguyen, 2008, Carmone, 2014, Nigatu, 2011, Sovannarith, 2012).

We found a lot of contextual factors, which were important to implementation, were perceived as under fulfilled (Kitson *et al.*, 1998, Rycroft-Malone *et al.*, 2002). In outer setting dimension, problems included internal and external stigmatization (Lisbet, 2009, Warouw, 2010, Tarigan, 2011, Samaran, 2013), distance (Tarigan, 2011), transportation cost (Warouw, 2010, Tarigan, 2011), complicated steps and long waiting times (Lisbet, 2009), the extent of agreement among facilities (Budisuari, 2011, Tarigan, 2011) and the national PMTCT policies (Budisuari, 2011, Tarigan, 2011) that were not supported by local regulations (Budisuari, 2011, Pujiastuti, 2011). However, we got limited information on system efforts to overcome them. Problems can be solved by technical innovation, communication with health care community, decision makers, and the public, skills building and counseling/support (Nayar, 2014, Frieden, 2014). PMTCT implementation should be supported by policies and regulation that also included services level (Torpey, 2010, Sturke, 2014, Xia, 2015, Frieden, 2014).

Related to inner setting, some PHC had no or less coordinated PMTCT teams (Budisuari, 2011, Samaran, 2013, Tarigan, 2011, Warouw, 2010, Pujiastuti, 2011), low socializations and feedback mechanisms (Widiyasari, 2014, Tarigan, 2011), low priority for PMTCT (Budisuari, 2011), limited number and quality of resources (human resources, rooms, funds, health education media, reagents, medications, universal protection instruments, birth control devices and milk or baby food) (Lisbet, 2009, Warouw, 2010, Budisuari, 2011, Tarigan, 2011, Samaran, 2013, Widiyasari, 2014), limited participation of leaders in supervision activities (Samaran, 2013, Widiyasari, 2014), limited training opportunities (Lisbet, 2009, Budisuari,

Table 5. Challenges of PMTCT and MCHS Integration by CFIR

DOMAIN and CONSTRUCT	1	2	3	4	5	6	7
I. INNOVATION CHARACTERISTICS							
1 Innovation Source				X			
2 Complexity				X			
3 Design Quality and Packaging				X			
II. OUTER SETTING							
4 Needs and Resources of Consumers	X	X		X	X	X	X
5 Cosmopolitanism			X	X	X		
6 External Policy & Incentives			X	X	X	X	X
III. INNER SETTING							
7 Networks and Communications	X	X	X	X	X	X	
8 Implementation Climate							
8.a. Goals and Feedback					X	X	X
8.b. Relative Priority			X	X			
8.c. Organizational Incentives and Rewards				X	X		
9. Implementation Readiness							
9.a. Leadership Engagement	X	X		X		X	X
9.b. Available Resources	X	X	X	X	X	X	X
9.c. Access to Knowledge and Information	X		X	X		X	X
IV. CHARACTERISTICS OF INDIVIDUALS							
10 Knowledge and belief about the intervention				X		X	X
11 Individual Stage of Change	X	X				X	
12 Individual identification with organization		X		X		X	X
13 Other Personal Attributes				X	X	X	
V. PROCESS							
14 Planning					X	X	
15 Engaging			X	X			
15.a. Opinion leaders		X					
15.b. Formally Appointed Internal Implementation Leaders				X			X
15.c. External change agents				X	X		
15.d. Stakeholders			X				
16. Executing	X	X	X	X	X	X	X
17 Reflecting and evaluating					X	X	X

1 = Lisbet, 2009; 2 = Warouw, 2010; 3 = Budisuari, 2011; 4 = Pujiastuti, 2011; 5 = Tarigan, 2011; 6 = Samaran, 2013; 7 = Widiyasari, 2014

2011, Samaran, 2013, Widiyasari, 2014) and incomplete PMTCT services (Lisbet, 2009, Samaran, 2013). All of these problems can affected PMTCT implementation and its results (Torpey, 2010, Sturke, 2014, Turan, 2015). Other factors such as multitasking strategy, coordination manner among staffs (Torpey, 2010), services/referral system (Kiersten, 2012, Turan, 2015), laboratory capacities (Sturke, 2014, Wiegert, 2014) and supply chain (Sturke, 2014) can also affected the implementation and

the results of programs.

Implementation also depends on facilitation factors (Kitson *et al.*, 1998, Rycroft-Malone *et al.*, 2002). Facilitation is a process to match purpose, role and skills to the needs of situation (Rycroft-Malone *et al.*, 2002). One of PMTCT facilitator factors was PHC staffs' motivation and skill (Warouw, 2010, Samaran, 2013, Widiyasari, 2014). Other factor was dimensions of process (CFIR Research Team, 2017), however, we found limited informations

about this dimension. Low engagement process combined with low training opportunities could be the explanation on why some of PMTCT services, recording and reporting were not performed.

Our systematic review had several strengths. Since researches from Indonesia were hardly linked to international online data base, we searched literatures from Indonesian online data base. Indonesian and English were used for search terms and we did not specify search term for integration of PMTCT. We also collected unpublished or locally published literatures. The limitation was limited number and quality of studies included. All of studies were qualitative with various numbers of samples and none of them used integration analysis framework. Only several of our studies provided results on PMTCT services. However, our systematic review raised some issue for further research especially on determinants of PMTCT other than level of integration.

Conclusion

Integration between PMTCT and MCHS are partial (Atun, 2010a). Integration has no direct impact to results, and is not a sole solution to PMTCT results. Influencing factor are resources, inclusion of patient's needs and perspective in services, networks and communications, external policy and incentives, leadership engagement and access to knowledge and information.

Our systematic review finds no studies discussed about planning function. Despite the limitation of information gathered in this review, we conclude that Atun's Integration Analysis Framework is suitable to assess level of integration for PMTCT because it can capture a dimension that rarely discussed by other frameworks.

Some of CFIR domains and constructs are less discussed, even though these constructs are potentially important in implementation of PMTCT. Therefore, we considered that CFIR framework is a very useful tool for further research of PMTCT implementation, especially to explore factors related to perception on intervention characteristics, individual characteristics and process.

Since level of integration is not always related to results of PMTCT, governmental

effort must focus on resources, inclusion of patients needs and perspective, building formal and informal networks and communications inside and outside public PHC, external policy and incentives, leadership engagement and access to knowledge and information.

Further researches on the integration of health system function between PMTCT and MCHS, especially related to planning function, are dispensable. Planning is fundamental, reflects organization's ability to use data and feedback information, develop new performance targets and indicators, develop necessary processes and implementation steps, identifying stakeholders, engagement strategies and reflection and evaluation needed.

Government should plan PMTCT services together with regional and local level to increase information on PMTCT services, ownership of PMTCT, leadership capability and process/strategy to involve stakeholders, in order to make smooth implementation.

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