ORIGINAL ARTICLE

Developing management capacity building package to district health manager in northwest of Iran: A sequential mixed method study

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Abstract

Objective: To assess districts health managers' educational needs and develop management training programmes.

Methods: This mixed-method study was carried out between August 2014 and August 2015 in Tabriz, Iran. Four focus group discussion sessions and three semi-structured face-to-face interviews were conducted among district health managers and experts of a health centre. Besides, 52 questionnaires were completed to weigh and finalise management education module and courses. Interviews and focus group discussions were tape-recorded, transcribed and analysed using content analysis method. Data was analysed using SPSS17.

Results: There were 52 participants, of whom 40(78.8%) were men and 12(21.2%) were women. All of the subjects (100%) took part in the quantitative phase, while 25(48.08%) participated in the qualitative phase. In the qualitative section, 11(44%) participants were heads of unit/departments in provincial health centre and 14(56%) were district health managers. In the quantitative phase, 30(57.7%) participants were district health managers and 8(28.8%) were heads of units/departments. Moreover, 33(63.4%) participants had medical education. The job experience of 3(5.8%) participants in the current position was below five years.

Districts health management training programme consisted of 10modules with 53 educational topics. The normalised score out of a total of 100 for rules and ethics was 75.51, health information management 71.19, management and leadership 69.27, district management 68.08, human resources and organisational creativity 67.58,quality improvement 66.6, health resources management 62.37, planning and evaluation 61.87, research in health system 59.15, and community participation was 53.15.

Conclusion: Considering district health managers' qualification in health and medicine, they had not been trained in basic management. Almost all the management and leadership courses were prioritised as most necessary.

Keywords: District health manager, Educational need assessment, Management training, Sequential mixed method, Health system. (JPMA 66: 1385; 2016)

Introduction

A district health system, which is a more or less self-contained segment of the national health system, includes all institutions and individuals serving health care in order to provide high-quality primary health care (PHC) to everyone in a defined geographical area.[1] It is a system of health care in which individuals, communities and all health care providers of the area participate together in homes, schools, workplaces and communities to improve their own health.[2] The district health system was completed by adding hospitals to primary health care, as a fundamental component in the comprehensive health services and resources needed to deliver inclusive care in the district.[3]

Almost all experts agree that PHC has failed in achieving the goals envisaged in the Alma-Ata declaration.[4] This failure led the World Health Organisation (WHO) managers to initiate second-generation reforms in the health system. Accordingly, neglect of people's demand, perceived quality, responsiveness of service, as well as focus on services provision and real needs were considered as major reason for the failure. Therefore, new generation of reforms in the health system focused on market mechanisms and effectiveness, in addition to efficiency which was supported by the World Bank.[3]

The effectiveness of health system and programmes depends on management, especially in first-line supervision, and it is the responsibility of system leader and top manager to facilitate and ensure the access to and availability of effective managers in system.[5] In this regard, the study of La Rue et al. conducted in Kenya

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demonstrates that Leadership Development Programme improved health service coverage and the number of visits significantly.[6] Dargon et al., a member of McKinsey Institute, based on a study in 194 hospitals in the United Kingdom, reported that improvement in management quality may also improve health outcomes.[7]

Fine et al. found that health managers in Kenya, Nigeria and Senegal perceived strong needs for training in financing, health policy and health management.[8] Filerman categorised health care management competencies into three main categories including human resources (HR) competencies, general management skills and advanced or senior management competencies.[5] Besides, he suggested that training of these competencies must be provided as on-the-job training in a team.[5] Also, Egger et al. classified managers duties under the areas, including: volume and coverage of services, resources, external relations and partners.[9] In this regard, some of the conditions known to facilitate good management were classified as: adequate number of managers, competencies, management support systems and enabling work environment.[9,10] Pfeffermann concluded that, whereas the cost of management development courses may seem high, a small positive change in management competencies can be more effective.[11] Egger et al. indicated that major barriers in management effectiveness are lack of access to national and international guidelines, and unclear job description and responsibilities. So, the formal and continuous management development programme can facilitate the transparency and improve the capacity of health system managers.

In Iran, like other developing countries, medical doctors (MD) without formal or in-service management training are appointed as health managers of districts and sub-districts.[12,13] On the other hand, district health managers due to a combination of technical and administrative tasks are commonly very busy, so educational programmes must be developed and prioritised on the basis of needs assessment.[14] The current study was planned to assess and prioritise districts health managers' educational needs and develop management training programmes.

Subjects and Methods

This mixed-method study was carried out between August 2014 and August 2015 in Tabriz, Iran, using qualitative and quantitative methods for data collection.

The study target population included all chancellors of health networks and all heads of departments in the East Azerbaijan Health Centre as well as district health managers, in the qualitative stage. Also, all chancellors of health networks and all heads of health departments in the East Azerbaijan Health Centre and district health managers in northwest provinces of Iran participated in the quantitative stage. A purposive sampling strategy was used to select senior managers and staff. Fourteen departments were included to participate in the study, from which one to eight senior managers and staff were selected.

Data collection process was completed by conducting four focus group discussion (FGD) sessions and three interviews were carried out with senior staff. Interviews and meetings were done face-to-face and lasted approximately an hour-and-a-half. Data collection and recruitment were continued in each department until interviews with most of those principally responsible in health programmes were conducted. Moreover, questionnaires were completed in the quantitative section to weigh and finalise management education module and course as well as educational unit.

Interviews including open-ended questions lasted about an hour-and-a-half and explored the participants' interpretations of internal and external managerial barriers and deficiencies in detail using a semi-structured topic guide. Interviews were conducted individually or based on FGD, depending on the convenience of the respondents and the structure of each department. A facilitator facilitated each FGD, while a note-taker was primarily responsible for the audio-recording and noted the order in which participants took part. The interview guide reflected the study's objectives as educational needs of a district health manager for different managerial competencies.[14-16]

The results of the quantitative section were analysed and the module, course, and educational unit were extracted. Based on the findings of the quantitative section, a District Management Competency Rating Tool was developed. Using the Likert scale of 1 to 5 (with 1 as NOT Very Important or applicable to 5 as Extremely Important or applicable), and the importance and the applicability of competency was separately rated.

Approval was obtained from the research and ethics committee of Tabriz University of Medical Sciences. In addition, informed consent was obtained from all participants. Furthermore, subjects who had no interest in the study or did not complete the research process were excluded.

We conducted a sequential data analysis, through which qualitative data was used to generate items for the development of quantitative measures and

educational contents.[17,18] In this regard, all interviews and FGD sessions were tape-recorded and transcribed with the participants' consent. We analysed the qualitative data after all transcripts were read several times and coded. Texts were coded, clustered and developed into themes and sub-themes for analysis. Content analysis and comparison of themes were performed and key themes, phrases and practices were used to organise data in a logical format. Preliminary results were also sent to several participants to improve the reliability of the result.

The research team informed participants at all levels about the survey and requested for their voluntary participation. Respondents were reassured of confidentiality of matters under discussion.

Analysis continued until no new themes emerged. Once coded, data was transferred into structured thematic table, which allowed easy access to condensed aggregated data relating to the themes (module) and subthemes (course and educational topics) of interest while still retaining the participants' own language. Finally, areas where there was either clear consensus or debate were highlighted, and relationships arising out of the data (within the conceptual framework) were explored. Discussion between the researchers allowed for clarification, testing and revision of the findings.

Quantitative and qualitative variables were presented as mean and standard deviation (SD) and n(%), respectively. SPSS 17 was used for data analysis.

Result

Of the 52 participants, 40(78.8%) were men and 12(21.2%) were women. All of the subjects took part in the quantitative phase while 25(48.08%) participated in the qualitative phase.

There were 16(64%) men and 9(36%) women in the qualitative section. Moreover, 11(44%) of them were heads of unit/departments in provincial health centre and 14(56%) were district health managers. Besides, 7(28%) participants' job experience in the current position was below five years, and 5(20%) had more than 15-year experience.

In the quantitative phase, 32(61.5%) participants were aged between 40 and 50 years. Furthermore, 30(57.7%) of them were district health managers and 8(28.8%) were heads of units/departments. Moreover, 33(63.4%) participants had medical education. The job experience of 3(5.8%) participants in the current position was below five years and 22(42.3%) had more than 20-year experience (Table-1).

Table-1: Characteristics of participants in focus group discussions and interview (Qualitative phase) and rating educational assessment (Quantitative phase).

Variable	Qualitative phase		Quantitative phase	
	No	%	No	%
Gender				
Male	16	64	40	78.8
Female	9	36	12	21.2
Education				
BSc	2	8	13	25
MSc	6	24	3	5.8
MD	14	56	33	63.4
PhD	3	12	3	5.8
Job Position				
Head of department	11	44	15	28.8
Member of department	--	--	7	13.5
District health manager	11	44	30	57.7
Faculty member	3	12	--	--
Years in Current Job				
< 5	7	28	3	5.8
5 - 10	9	36	10	19.2
10 - 15	4	16	9	17.3
15 - 20	2	8	8	15.4
>20	3	12	22	42.3

BSc: Bachelor of Science
MSc: Master of Science
MD: Doctor of Medicine
PhD: Doctor of Philosophy.

Educational needs of district health managers were divided into 10 modules containing 54 educational courses and topics (Table-2).

The first six highest-scoring competencies included rules and ethics, health information management and situation analysis, management and leadership, district management, health resources management and quality improvement.

Under the head of 'rules and ethics', the normalised score for legal issues in management was 89.90 (out of 100) and 71.74 for management ethics; the mean necessity and applicability ratings for the two topics were 4.38±1.02 and 4.26±0.94, respectively. Under 'managing the district' module, the scores were 68.26 for PHC approach in organisation and management of health services,74.36 for district health system and 75.83 for disaster management, whereas the necessity and applicability ratings were 4.37±0.97 and 3.98±1.24, 4.53±0.74 and 4.16±1.04, and 4.46±0.68 and 4.31±0.87, respectively.

Under 'quality improvement', the mean necessity and applicability ratings for Find, Organise, Clarify, Understand, Select, Plan, Do, Check, Act (FOCUS PDCA) (score: 70.24) were 4.38±0.84 and 4.08±1.08, and for

Table-2: Summary of all district management competencies rating, with overall scoring and rating.

Educational Module	Educational Topic	Necessity (N) (1-5) Mean (SD)	Applicability (A)(1-5) Mean (SD)	Normalised score (N * A)(0-100) Mean
Managing the District	Introduction to health and health system	4.35 (0.86)	3.82 (1.1)	65.02
	PHC approach in the organization and management of health services	4.37 (0.97)	3.98 (1.24)	68.26
	District health systems	4.53 (0.74)	4.16 (1.04)	74.36
	Disaster preparedness	4.46 (0.68)	4.31 (0.87)	75.83
	Development plans	4 (1)	3.67 (1.17)	56.94
Quality improvement	Quality Managementin Health Systems	4.23 (0.99)	3.84 (1.16)	63.44
	Quality improvement approaches	4.29 (0.98)	3.78 (1.2)	63.33
	Quality improvement methods	4.33 (0.8)	3.92 (1.08)	66.50
	FOCUS PDCA	4.38 (0.84)	4.08 (1.08)	70.24
	Clinical audit	4.22 (0.85)	3.86 (0.98)	63.65
	Process mapping	4.4 (0.74)	4.18 (0.91)	72.46
Health information management and Situation Analysis	Health management information systems	4.34 (0.89)	3.98 (1.04)	67.81
	Health indicators	4.5 (0.71)	4.42 (0.81)	78.71
	Health data analysis	4.52 (0.74)	4.38 (0.92)	78.32
	Introduction to Epidemiology	4 (0.99)	3.88 (1.12)	60.50
	Epidemiological assess of health			
Situation in a district	4.35 (0.93)	4.12 (1.03)	70.50	
Planning and Evaluation	Situation analysis of district health	4.42 (0.84)	4.1 (1.19)	71.31
	Strategic planning	4.1 (1.02)	3.76 (1.11)	59.98
	Operational planning	4.08 (1.06)	4.12 (1.02)	65.85
	Evaluation Methods and accreditation	4.08 (0.91)	3.94 (1.04)	62.79
	Priority setting	4.08 (0.96)	3.98 (0.91)	63.47
	Project planning methods	3.9 (1.14)	3.78 (1.09)	57.29
Research in health system	Quantitative research in health system	3.65 (1.1)	3.25 (1.12)	45.20
	Qualitative research in health system	3.67 (1.14)	3.33 (1.1)	46.76
	Data management	3.83 (1.06)	3.65 (1.12)	54.07
	Health need assessment in district	4.27 (0.93)	3.98 (0.98)	66.55
Community participation	Health education techniques	4.02 (1.05)	3.88 (1.04)	60.75
	Community Participationmethods	4.12 (0.86)	3.61 (1.19)	57.88
	Multi-sectoral Collaboration and advocacy	4.27 (0.87)	4.02 (1.01)	67.38
	Social marketing	3.81 (1.16)	3.33 (1.39)	48.68
	Techniques and methods for public participation	4.06 (1.06)	3.85 (1.15)	61.07
Health Resources Management and Economics	Accrual accounting	4.06 (1.14)	3.84 (1.2)	60.78
	Financial control	4.31 (0.93)	4.1 (1.12)	69.54
	Payment mechanisms	4.06 (1.16)	3.92 (1.22)	62.13
	Health economy	3.74 (1.13)	3.76 (1.04)	54.51
	Management of Physical Infrastructure	4.21 (1.03)	3.96 (1.04)	65.23
	Health insurance	4 (1.17)	3.74 (1.17)	58.24
	Cost estimation and Budgeting	4.27 (1.06)	3.96 (1.07)	66.18
Human Resources and Organizational creativity	Human resources management	4.31 (1)	4.06 (1.08)	68.72
	Employee training and empowering	4.14 (0.91)	4 (1.05)	64.88
	Effective communication	4.23 (1.02)	4.02 (1.19)	66.69
	Time management	4.29 (0.94)	4.21 (0.97)	70.98
	Creativity and Innovation	4.22 (1.01)	4.02 (1.1)	66.61
Management, Leadership	Basic Concepts ofmanagement	4.51 (0.65)	4.14 (0.91)	73.69
	Leadershipand supervision	4.41 (0.76)	4 (0.94)	69.30
	Change management	4.33 (0.88)	3.92 (0.9)	66.44
	Team management	4.43 (0.82)	4.18 (0.88)	73.03
	Conflict management	4.21 (0.85)	3.94(0.95)	64.88
	Basic Skills in Communication	4.31 (1.04)	4.21 (0.99)	71.34
	Staff motivation	4.22 (1.12)	4 (1.15)	66.24
Rules and ethics	Management ethics	4.35 (0.93)	4.18 (1.09)	71.74
	Legal issues in Management	4.38 (1.02)	4.26 (0.94)	89.90
	External inspection and accounting	4.21 (0.97)	3.94 (1.09)	64.90
Total		4.2	3.95	64.96

FOCUS PDCA: Find, Organise, Clarify, Understand, Select, Plan, Do, Check, Act. SD: Standard Deviation.

process mapping (72.46) were 4.4±0.74 and 4.18±0.91.

The overall necessity and applicability ratings were 4.34±0.89 and 3.98±1.04 for health management information systems (67.81), 4.35±0.93 and 4.12±1.03 for epidemiology (70.50), 4.5±0.71 and 4.42±0.81 for health indicator (78.71), 4.42±0.84 and 4.1±1.19 for situation analysis of district health (71.31) and 4.52±0.74 and 4.38±0.92 for health data analysis (78.32).

The two ratings were 4.31±1 and 4.06±1.08 for training the basics of human resources management (68.72), 4.23±1.02 and 4.02±1.19 for effective communication tools and methods (66.69), 4.29±0.94 and 4.21±0.97 for time management ability (70.98) and 4.22±1.01 and 4.02±1.1 for creativity and innovation in healthcare settings (66.61).

Under the module of 'management and leadership', the mean necessity and applicability ratings were 4.51 (0.65) and 4.14 (0.91) for the basic concepts of management (73.69), 4.43 (0.82) and 4.18 (0.88) for team management (73.03), 4.31 (1.04) and 4.21 (0.99) for basic skills in communication (71.34), and 4.22 (1.12) and 4 (1.15) for staff motivation (66.24).

Discussion

The results of this study indicated that district management, quality improvement, health information management and situation analysis, planning and evaluation, research in health system, community participation, health resources management, management of human resources, management, and leadership as well as rules and ethics were essential and important managerial courses. Consequently, all district health managers must be trained and empowered in the above-mentioned fields.

According to the results of the current study, reporting the necessity of managerial training in almost all designed modules indicated the inadequate capacity of these managers with regard to their abilities. Muchekeza et al. found that almost all district health executives (29/30) in Midlands, Zimbabwe, possess inadequate management abilities to undertake their management responsibilities. Also, leadership and governance, monitoring and evaluation, human resources management, strategic planning and general health services management were the most required training topics.[19] Kolemainen et al. demonstrated that untrained health managers and weak personnel systems restrict health systems to achieve their goals.[20]

According to some studies in different settings, although core competencies were attained by health service managers, the methods of implementing these competencies in a real setting may vary according to management levels and sectors.[21-23] In the current study, we prioritised district health managers' competency-related requirements. In this regard, Liang et al. classified competency requirements of middle and senior managers under the following essential categories: evidence-informed decision-making, knowledge of health services, knowledge about the organisation, interpersonal communication skills, relationship management, and operation, administration and resource management.[24]

According to the participants, managers' familiarity with rules and ethics is an important ability to be practically effective in their conditions. So, this factor is related to non-transparent regulations and inconsistent responsibilities at national level and the process of monitoring by authorities. This issue is most closely linked with health resources management and financing, therefore, resources management was a highly-rated module from health managers' viewpoint. Waweru et al. considered that greater emphasis is needed on financial management training, targeted supportive supervision, and greater community awareness, along with focus on participation and training courses in these fields.[25] Asante et al. represented that budgeting and finance, management information and procurement and supply are the most critical functions to support health directors to manage effectively, and the leadership and management capacity must be improved by training.[26]

Based on the findings of the current study, health information management is one of the most important training programmes for managers who perceived weakness in using information in management. In this respect, some studies have confirmed that evidence-based decision-making can improve the quality of health service managers' decisions, minimise errors and improve health system outcomes.[27-29] Weakness in leadership and priority setting was one of the most commonly perceived inabilities, based on district health managers' own self-reported information.[30]

Also, since a majority of participants in this study were graduates of health and medical sciences, they had not received basic management training. It should be noted that management and leadership was scored as the most vital programme. An Indian study pointed out that health managers needed to be trained as regards exposure to district health planning, financial management, technical and administrative issues.[31] De Brouwere et al. recognised

that district health managers reported the supervision as team analysis of problems and identification of possible solutions are needed for the success of these courses.[32]

Due to increasing public expectations and awareness of health services, health managers' capability of quality improvement was considered as a requisite and applicable training course in Iran. It is noteworthy that the quality improvement is a required capacity to be possessed in international settings. Marquez et al. reported that instructing health professionals in problem-solving methods improved their capability of addressing problems, and capacity-building for management.[33]

While Conn et al. demonstrated that programmes for strengthening the health management improve the quality of team planning and coordination and resource management, policy and practice of government at national level, resource-supplying organisations, and particularly charity organisations limit the effectiveness of management skills as well as capacity.[34] The continuity of training health managers is a critical factor in success and effectiveness of education.In consistent with that point, Diaz-Monsalve found out that attending intermittent training courses reduces management deficiencies.[35] Beanland et al. discovered that educating health system managers and influencing policymakers and financial supporters using novel information systems is shown to be an effective approach to managers training in response to health problems.[36]

Conclusion

District health managers prioritised the necessity of management competencies training programmes in the following order: rules and ethics, health information management and situation analysis, management and leadership, district management, health resources management and quality improvement. Following the present study, management training courses were developed and conducted to equip district health managers with health management skills. Provincial supervision and intermittent training courses must be conducted to improve and ensure training effectiveness.

Acknowledgment

We are grateful to Eastern Azerbaijan province health centre employees and district health managers for data collection.

Disclaimer: This study was extracted from PhD dissertation which was approved by the School of Management and Medical Informatics, Tabriz University of Medical Sciences, Iran.

Conflict of Interest: None.

Source of Funding: None.

References

1. WHO. The challenge of implementation: District health systems for primary health care. The challenge of implementation: District health systems for primary health care. World Health Organization; 1988.
2. Görgen H, Kirsch-Wolk T, Schmidt-Ehry B. The district health system: experiences and prospects in Africa. Manual for public health practitioners. 2nd Ed. Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) GmbH; 2004.
3. Segall M. District health systems in a neoliberal world: a review of five key policy areas. Int J Health Plan Manag 2003; 18: S5-26.
4. Oleribe OO, Crossey MME, Taylor-Robinson SD. Sustainable Health Development Goals (SHDG): breaking down the walls. Pan Afr Med J 2015; 22: 306
5. Filerman GL. Closing the management competence gap. J Hum Resour Health 2003; 1: 1-3.
6. Seims LRK, Alegre JC, Murei L, Bragar J, Thatte N, Kibunga P, et al. Strengthening management and leadership practices to increase health-service delivery in Kenya: an evidence-based approach. Hum Resour Health 2012; 10: 25.
7. Dorgan S, Layton D, Bloom N, Homkes R, Sadun R, Van Reenen J. Management in healthcare: why good practice really matters. London: McKinsey and Company/London School of Economics; 2010.
8. Fine J. Business Schools and Health Care Management Training: A Strategic Perspective. Global Business School Network; 2009: 10-1.
9. Egger D, Travis P, Dovlo D, Hawken L. Strengthening management in low income countries; Making Health Systems Work Series. Working Paper 1. Geneva: World Health Organization; 2005.
10. De Savigny D, Adam T. Systems thinking for health systems strengthening. World Health Organization; 2009.
11. Pfeffermann G. Leadership and management quality: key factors in effective health systems. World Hosp Health Serv 2011; 48: 18-20.
12. Devadasan N, Elias M. Training Needs Assessment for District Health Managers. Bangalore Bangalore: Institute of Public Health. 2008:78.
13. Prashanth NS, Marchal B, Devadasan N, Kegels G, Criel B. Advancing the application of systems thinking in health: a realist evaluation of a capacity building programme for district managers in Tumkur, India. Health Res Policy Syst. 2014; 12: 42.
14. Chatora R, Tumusiime P. Health sector reform and district health systems. Brazaville: WHO; 2004.
15. Reiprich G, Kroeger A, Dörlemann A, Marx M, Kuper M, Störmer M, et al. District Health Management Tools. Berlin: InWEnt, Health Section; 2004.
16. Byleveld S, Haynes R, Bhana R, Dudley L, Barron P. District Management study; A review of structures, competencies and training interventions to strengthen district management in the national health system of South Africa. South Africa: Health Systems Trust; 2008.
17. Östlund U, Kidd L, Wengström Y, Rowa-Dewar N. Combining qualitative and quantitative research within mixed method research designs: a methodological review. Int J Nurs Stud 2011; 48: 369-83.
18. Jayasekara RS. Focus groups in nursing research: Methodological perspectives. Nurs Outlook 2012; 60: 411-6.
19. Muchekeza M, Chimusoro A, Gombe NT, Tshimanga M, Shambira G. District health executives in Midlands province, Zimbabwe: are they performing as expected? BMC Health Serv Res 2012; 12: 335.
20. Kolehmainen-Aitken RL. Decentralization's impact on the health

workforce: Perspectives of managers, workers and national leaders. Hum Resour Health 2004; 2: 1-11.
21. Calhoun JG, Dollett L, Sinioris ME, Wainio JA, Butler PW, Griffith JR, et al. Development of an interprofessional competency model for healthcare leadership. J Healthc Manag 2008; 53: 375-89.
22. McCarthy G, Fitzpatrick JJ. Development of a competency framework for nurse managers in Ireland. J Contin Educ Nurs 2009; 40: 346-50.
23. Stefl ME. Common competencies for all healthcare managers: the healthcare leadership alliance model. J Healthc Manag 2008; 53: 360-73.
24. Liang ZM, Howard PF, Koh LC, Leggat S. Competency requirements for middle and senior managers in community health services. Aust J Pri Health 2013; 19: 256-63.
25. Waweru E, Opwora A, Toda M, Fegan G, Edwards T, Goodman C, et al. Are Health Facility Management Committees in Kenya ready to implement financial management tasks: findings from a nationally representative survey. BMC Health Serv Res 2013; 13: 404.
26. Asante A, Roberts G, Hall J. A review of health leadership and management capacity in the Solomon Islands. Pac Health Dialog 2012; 18: 166-7.
27. Liang Z, Howard P, Rasa J. Evidence-informed managerial decision-making: What evidence counts?:(part one). Asia Pac J Health Manag 2011; 6: 23-9.
28. Shortell SM. Promoting evidence-based management. Front Health Serv Manag 2006; 22: 23-9
29. Kovner AR, Rundall TG. Evidence-based management reconsidered. Front Health Serv Manag 2006; 22: 3-22.
30. Ziegler PB, Anyango H, Ziegler HD. The need for leadership and management training for community nurses: results of a Ugandan district health nurse survey. J Commun Health Nurs 1997; 14: 119-30.
31. Pal D, Toppo M, Gupta S, Nair K, Khattar P, Nandan D. A rapid appraisal of functioning of district programme management units under NRHM in Madhya Pradesh. Indian J Pub Health 2008; 53: 151-6.
32. De Brouwere V, Van Balen H, editors. Hands-on training in health district management. World health forum. WORLD HEALTH ORGANIZATION; 1996.
33. Marquez L, Madubuike C. Country experience in organizing for quality: Zambia. QA Brief 1999; 8: 16-9.
34. Conn CP, Jenkins P, Touray SO. Strengthening health management: experience of district teams in The Gambia. Health Policy Plan 1996; 11: 64-71.
35. Rockers PC, Bärnighausen T. Interventions for hiring, retaining and training district health systems managers in low?and middle?income countries. Cochrane Database Syst Rev 2013; 4: CD009035
36. Beanland TJ, Lacey S, Melkman D, Palmer S, Stothard J, Fleming F, et al. Multimedia materials for education, training, and advocacy in international health: experiences with the Schistosomiasis Control Initiative CD-ROM. Memórias do Instituto Oswaldo Cruz 2006; 101: 87-90.