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THE IMPACT OF A FAMILY PHYSICIAN AT A COMMUNITY HEALTH CENTRE

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1. ABSTRACT

Background: There is an evidence gap when assessing the impact of a family physician (FP) at community health centres (CHC'S) with local studies reporting mixed results. The evidence base for the impact of a family physician is growing as family medicine is still a young discipline in South Africa. This study aims to assess the functional role of a FP at a CHC.

Methods: This is a descriptive observational study that documents the changes that has taken place in the facility since the introduction of a family physician. Trends on mortality, patient safety incidents and referrals are presented.

Results and Discussion: The allocation of a family physician to a CHC facilitated the transition of the CHC to cope with emergencies by upskilling staff, introduction of monitoring tools and procuring the necessary equipment and consumables to deal with emergencies. Morbidity and mortality, resuscitation and referral committees were set up and these activities commenced to impact positively on clinical governance. The Family Physician was able to draw up and review the facility Standard Operating Procedures. All these impacted on the CHC being able to achieve platinum score for the ideal CHC assessment. There was improved communication with the district referral hospital. The CHC had a go to person for consultation. The impact in terms of outcomes was a reduction in mortality, preventable deaths, and patient safety incidents.

Conclusion: Family Physicians are well positioned to play a pivotal role in the CHC as a leader, capacity builder, consultant, care provider and clinical trainer. Clinical governance and community-oriented primary care are included in their key roles.

2. BACKGROUND

The impact of FP's across the district health services in South Africa is well recognised.[1-6] The positive impact on Community Health Centres (CHC's) through the defined roles of a Family Physician(Clinician, consultant, capacity-builder, leader in clinical governance, champion of community orientated primary care and clinical trainer) has been reported in some areas.[2,7]

An evidence gap is clear when assessing the impact of a family physician at community health centres with local studies reporting mixed results .[1,5,8]

Data from a cross sectional observational study that compared 15 district hospitals and 15 CHC's with family physicians in comparison to those without family physicians found that CHC's with FP's scored lower for clinical care, health system performance, continuity and coordination of care .[8] This finding conflicted with the global literature and advocated for more research on the effectiveness of a family physician at a CHC[8]. The evidence base for the impact of a FP is growing as family medicine is still a young discipline in South Africa. This study aimed to assess the functional role of a family physician employed as a medical officer/supervisor at a CHC by reflecting on the FP activities and reporting on health outcome and quality trends since the posting of the FP at the CHC.

3. METHODS

Study design: This is a descriptive observational study that documents trends across multiple health indicators at an urban CHC in the eThekwini Metropolitan, KwaZulu Natal , since the facility employed a Family Physician (FP) in a medical officer post. The study population represented all patients attending Phoenix CHC since the 1st July 2021 up to the 31st March 2023. This represents the period since the facility employed the FP.

Data Collection: Data was collected temporally for the study duration on key indicators. Sources of data included the deaths register, referrals register, data from the district health information system and the quality assurance department. Indicators focused on mortality data, safety data and data from quality improvement plans on the Central Chronic Medicines Dispensing and Distribution Programme (CCMDD) and Ideal CHC. The scores for Ideal CHC are presented with expected impact to take place 6 months after the posting of a family physician.

Data Analysis: The data was captured onto a Microsoft Excel spreadsheet and analysed for descriptive and inferential analyses. A single sample T-test was used to test for differences from the baseline quarter over time. For mortality and resuscitation data, skewness and kurtosis were measured to determine the normality of distribution. Based on the nature of the distribution which was normal, Pearson's r was selected to run correlation tests. The level of significance used was $p < 0.05$.

4. RESULTS

Table 1 depicts facility level data from July 2021 to March 2023 and compares indicators on a quarterly basis. The facility sees an average of 16 360 patients per month. The busiest quarter was noted to be the third quarter of 2022 (July to August 2022). 13.02% of the facility headcount is under 5 years; 2.64% between the ages 5 to 9 years; 4.54% are between the ages of 10 to 19 years and 79.79% of clients are over the age of 20 years. The nurse to doctor ratio is 1.77.

Facility workload, quality, safety, mortality and mother and child trends are depicted on Table 1. Patient complaints have not dropped significantly over time (t-value = 1.15; p value = 0.29)There is a statistically significant reduction in patient safety incidents (t-value = -4.94; p value = 0.003) and preventable deaths (t-value = -5.20; p value = 0.003). Referrals and EMS (Emergency Medical Services) waiting times have increased over time. Maternal and child data show that while the maternal mortality ratio is zero, the mean perinatal mortality rate was 19.4 per 1000 deliveries.

For chronic care, data was analysed to assess the number of patients registered on the CCMDD program on a weekly basis. The mean number of prescriptions increased in 2023 to 245 prescriptions per week compared to the 137 prescriptions per week in 2021. This reflects a 78.8% increase in weekly CCMDD prescriptions. Ideal CHC scores are depicted on Table 2 and trends show improvement to platinum score in 2022.

	Period	JUL-SEP21		OCT-DEC21		JAN-MAR22		APR-JUN22		JUL-SEP22		OCT-DEC22		JAN-MAR23		JUL21-MAR23	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
HEADCOUNTS	Total Headcount	15422	1672	16303	3916	16953	2085	16872	647	17374	1142	15669	2219	15927	850	14788	1064
	Headcount under 5 years	1562	136.44	2078	371.42	2203	209.81	2554	204.12	2892	868.12	1635	206.48	1987	360.65	1553	261.10
	Headcount 5-9 years	302	75.61	333	70.55	471	105.53	442	59.01	627	320.17	375	46.19	476	57.18	480	46.46
	Headcount 10-19 years	681	206.78	679	101.84	818	73.37	917	18.68	806	570.70	624	68.82	681	74.75	742	101.39
	Headcount 20 years and older	12876	1318.55	13213	3387.57	13461	1868.40	12960	410.22	13049	1370.73	13036	1941.81	12783	669.02	12014	1188.28
	Client seen by professional nurse	6719	1098.84	7560	2640.31	8849	273.29	8147	1023.43	10247	532.62	11351	984.68	14152	3166.48	13050	792.32
	Client seen by Doctor	3314	927.01	3032	978.29	5168	1100.60	6499	839.47	6868	2085.33	5498	1276.79	7545	127.87	5887	371.24
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
QUALITY, SAFETY AND MORTALITY	Total Complaints Received	10	11,6	18	20,9	17	19,8	4	4,7	11	12,8	17	19,8	9	10,5	86	100
	Patient Safety Incidents reported	7	38,9	3	16,7	4	22,2	0	0	1	5,6	2	11,1	1	5,6	18	100
	Number of Patients Resuscitated	9	15,8	4	7	7	12,3	10	17,5	9	15,8	11	19,3	7	12,3	57	100
	Number of Successful Resuscitations	0	0	0	0	1	5,3	5	26,3	8	42,1	3	15,8	2	10,5	19	100
	Successful Resuscitations Rate	-	0	-	0	-	14,3	-	50	-	88,9	-	27,3	-	28,6	-	33,3
	Referrals	351	7,4	625	13,1	657	13,8	722	15,2	714	15	790	16,6	897	18,9	4756	100
	EMS Wating times (minutes)	142	12,6	118	10,5	142	12,6	153	13,6	164	14,6	189	16,8	215	19,1	1123	100
	Dead on Arrival	14	19,4	8	11,1	9	12,5	3	4,2	11	15,3	17	23,6	10	13,9	72	100
	Death in facility	10	26,3	8	21,1	5	13,2	5	13,2	2	5,3	6	15,8	2	5,3	38	100
	Total Deaths	24	21,8	16	14,5	14	12,7	8	7,3	13	11,8	23	20,9	12	10,9	110	100
	Preventable Deaths	7	28	5	20	6	24	2	8	3	12	1	4	1	4	25	100
	Facility Death Rate / 10 000 Headcount	6,5	-	4,9	-	2,9	-	3	-	1,2	-	3,8	-	1,3	-	3,4	
																Mean	
MOTHER AND BABY	Mean Deliveries/Month	-	-	-	-	78	-	85	-	69	-	77	-	70	-	76	-
	Perinatal Mortality Rate (per 1000 deliveries)	-	-	-	-	26,5	-	11	-	20	-	26,5	-	13	-	19,4	-
	Neonatal Death Rate (%)	-	-	-	-	0	-	0	-	0	-	5,7	-	0	-	1,14	-
	Assisted Delivery Rate (%)	-	-	-	-	0	-	0	-	0	-	0	-	0	-	0	-
	Still Birth Rate (%)	-	-	-	-	27	-	3,85	-	20,30	-	21,30	-	13,6	-	17	-
	Low Birth Weight Rate (%)	-	-	-	-	15,5	-	7,9	-	10,06	-	14,1	-	9,5	-	11,41	-
	Teenage Delivery Rate (%)	-	-	-	-	2,05	-	0,4	-	0,9	-	1,1	-	2,7	-	1,43	-
	Maternal Mortality Ratio	-	-	-	-	0	-	0	-	0	-	0	-	0	-	0	-
	Antenatal First Visit before 20 weeks (%)	-	-	-	-	57,05	-	52,85	-	55	-	58,35	-	48	-	54,25	-
	Perinatal Care Index	-	-	-	-	1,71	-	1,39	-	1,99	-	1,88	-	1,37	-	1,70	-

Table 1: Facility workload, quality, safety, mortality and mother and child trends

Ideal Clinic Elements	8/2019	8/2020	6/2021	9/2021	6/2022	9/2022
Non-negotiable Vital (%)	N/A	50	50	50	100.00	100.00
Vital (%)	67	82	64	54	86.21	90.90
Essential (%)	77	66	66	66	83.32	72.49
Important (%)	83	73	75	64	83.74	79.79
Total (%)	80	71	68	62	79,48	84,40
Ideal Clinic Category (%)	Not achieved	Not achieved	Not achieved	Not achieved	Silver	Platinum

Table 2: Ideal CHC scores

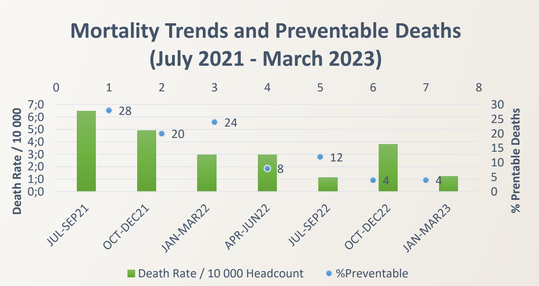

Figure 1: Mortality trends & Preventable Deaths

Role of a Family Physician	Activities	What can be improved in the next year
Clinician	On site clinical care and after hour care provided across clinical domains By implementing conscious sedation, allowed for many minor surgical procedures and fracture reductions to be managed on site	Improving outcomes within the integrated chronic disease management program Improving ultrasound skills to initiate on site ultrasound scanning
Consultant	Provides supervision and support to nursing, doctors and allied health professionals Clinical input provided with one-on-one discussions with the team of healthcare workers	Getting feedback to assess strengths and weakness as a Consultant objectively
Capacity Builder	Mentoring and clinical training done formally by implementing a weekly CME program Informal Training done during the provision of direct clinical care	Including practical skills training and fire drills Applying for CPD points for activities done
Clinical Governance	Assisted in drafting and implementing clinical Standard Operating Procedures as guided by the ideal health clinic module Through clinical audit, paved the way to expand the CCMDD program by partnering with HST and Pharmacy to move the system to an electronic platform Initiation and chairing of the Morbidity and Mortality, Referral and Resuscitation meetings. The meetings are inclusive of all categories of staff to enable a learning environment and accountability Chairing the Pharmacy and Therapeutics Committee and Clinic Audit Meetings Completion of ordering forms and actively engaging with Supply Chain Management to get equipment and consumables Improved monitoring of the unstable patient with a monitoring chart implemented and one to one nursing for a critically ill patient Deals with the administrative tasks of the facility – Allocations, Leave Management, Road accident fund and insurance claims	Improving referrals and engaging with Emergency Medical Services (EMS) to improve waiting times Improving quality across all domains by assessing performance across areas highlighted in the annual performance plan 2023/2024
Community-oriented primary care	Not actively involved with the outreach team due to staff However, the outreach team attends perinatal, morbidity and mortality and referral meetings where lessons learnt and interventions at community level can be tackled	Invite stakeholders engaged in COPC and lead a project that will enable the facility to tackle issues affecting the health of the community
Clinical Trainer	Involved in the training and supervision of undergraduate medical students attending the facility. Provides mentoring to students and teams the students with other healthcare workers to develop competency. Directly supervises clinical audits done by students	Liaise and communicate with UKZN to explore gaps noted within the facility in terms of training opportunities afforded to students

Table 3: Family Physician roles undertaken at a CHC

5. DISCUSSION

The allocation of a family physician to a CHC facilitated the transition of the CHC to cope with emergencies by upskilling staff, introduction of monitoring tools and procuring the necessary equipment and consumables to deal with emergencies, improve Ideal CHC scores and governance(Table 2). The impact in terms of outcomes was a reduction in mortality, preventable deaths, and patient safety incidents. While other factors, including Covid-19, may account for the reduced mortality, the drop in preventable deaths point to improved governance. The percentage of successful resuscitations was strongly negatively correlated – (Pearson's r = -0.74, p-value 0.028) to the death rate. The death rate was moderately positively correlated to preventable deaths but not statistically significant (Pearson's r = 0.64, p-value 0.061). The CCMDD program has been evaluated and has shown positive results in terms of accessibility of medications, reduced waiting times, facility decongestion and reduced stigma. The increased implementation and use of this platform was enabled by procuring laptops for all the doctors in the facility and the reduction of polypharmacy by using the strategy of deprescribing. Trends were presented to motivate staff and buy in was achieved from nursing, pharmacy, and doctors. The gains in terms of facility decongestion are apparent in the drop of the total headcounts per quarter.

The lack of recognition and support from a government policy perspective together with the high workload are some of the challenges faced by family physicians.

6. CONCLUSION

Family Physicians are well positioned to play a pivotal role in the CHC. This facility with a family physician has shown positive health outcome trends.

7. REFERENCES

1. How family physicians strengthen district health services: Policy brief. Available from: http://www.saafp.org/index.php/main-menu/policy-brief (Accessed 01 July 2023)
2. Von Pressentin KB, Mash RJ, Baldwin-Ragaven L, et al. The perceived impact of family physicians on the district health system in South Africa: a cross-sectional survey. BMC Fam Pract 2018; 19: 24.
3. Von Pressentin K, Mash R, Baldwin-Ragaven L, Botha R, Govender I, Steinberg W. The bird's-eye perspective: how do district health managers experience the impact of family physicians within the South African district health system? A qualitative study. South African Fam Pract 2018; 60: 13–20.
4. Von Pressentin KB, Mash RJ, Baldwin-Ragaven L, et al. The influence of family physicians within the South African district health system: A cross-sectional study. Ann Fam Med 2018; 16. DOI:10.1370/afm.2133.
5. Von Pressentin KB, Mash RJ, Esterhuizen TM. Examining the influence of family physician supply on district health system performance in South Africa: An ecological analysis of key health indicators. African J Prim Heal Care Fam Med 2017; 9. DOI:10.4102/phcfm.v9i1.1298.
6. Mash R, Ogunbanjo G, Naidoo SS, Hellenberg D. The contribution of family physicians to district health services: A national position paper for South Africa. South African Fam Pract 2015; 57: 54–61
7. South African Academy of Family Physicians. The contribution of family physicians to district health services in South Africa: A national position paper by the South African Academy of Family Physicians. S Afr Fam Pract. 2022;64(1), a5473. https://doi.org/10.4102/safp.v64i1.5473
8. von Pressentin KB, Mash RJ, Baldwin-Ragaven L, Botha RPG, Govender I, Steinberg WJ, et al. The Influence of Family Physicians Within the South African District Health System: A Cross-Sectional Study. Ann Fam Med. 2018;16(1):28–36. https://doi.org/10.1370/afm.2133
9. National Department of Health. Ideal Community Health Centre Manual. Version 1. 2020. Available from: https://www.idealhealthfacility.org.za/App/Document/Download/206 (Accessed 01 July 2023)