

## DELAY DIAGNOSIS AND TREATMENT OF GYNECOLOGICAL CANCER AMONG WOMEN AT CANCER HOSPITAL, CHITWAN

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### ABSTRACT

Delay diagnosis of gynecological cancer results in advanced stage of cancer, less responsive to treatment and decreased rate of survival. The main objective of this study was to identify the delay diagnosis and treatment of gynecological cancer among women admitted in cancer hospital, Nepal. A descriptive cross-sectional study design was used. A total of 422 women admitted in B.P. Koirala Memorial Cancer Hospital, Chitwan, Nepal were selected by using non-probability sampling. Data was collected by semi structured interview schedule. Then analyzed and interpreted in terms of descriptive and inferential statistics. The mean age of the women was 51.19 years, 71.6% of them were diagnosed as cervical cancer. Median total diagnostic delay was 100 days with more 54.7% of the women having long total diagnostic delay of >90 days (maximum 672 days). Out of the total diagnostic delay, median personal, health care provider and diagnostic waiting time delay was 60 days, 30 days and 10 days respectively. Majority of the women had experienced short delay of each type except diagnostic delay (maximum 90 days). The median waiting time for chemotherapy, surgery and radiation therapy was 7 days, 30 days and 30 days respectively. There was statistically significant association between total diagnostic delay and marital status ( $p=0.043$ ), educational status ( $p=0.039$ ), occupation (0.004), afraid of cancer diagnosis ( $p=0.005$ ) and ignorance for cancer treatment (0.001). Treatment delay was statistically significant with age ( $p=0.014$ ). Based on the findings of the study, it is concluded that more than half of the women have total long diagnostic delay. Almost 4/5th of women have long delay in diagnosis (delay in report waiting). Even after diagnosis, they were waiting maximum 4-6 months for treatment. So, awareness programme is necessary for women for early seeking of medical help. Health personnel from general and cancer hospital should consider it seriously for the timely treatment of those women suffered from gynecological cancer.

**KEYWORDS:** Delay Diagnosis, Gynecological Cancer, Treatment, Women.

### INTRODUCTION

Gynecological cancers are the most common cancers in women. The burden of gynaecological cancers in developing countries appears huge. In these countries, gynecological cancers account for 25% of all new cancers diagnosed among women aged up to 65 years compared to 16% in the developed world.<sup>[1]</sup> The developing countries accounted for 77.7% of global estimates for new cases of the commonest gynecological cancers including cervical, corpus and ovarian cancer in 2009.<sup>[2]</sup>

In the developing countries, first commonest gynecological cancer is cervical and second is ovarian cancer. Vaginal cancer is rare and constitutes less than 2% and vulva cancer constitutes 3% worldwide.<sup>[3]</sup> In Nepal 2003 to 2012 total hospital female cancer patients

were 55931 and cervix uteri was the major cancer over the ten years.<sup>[4]</sup> The another research of gynecological cancer in Nepal shows that cervix uteri (19.1%) and ovary (6.1%).<sup>[5]</sup> According to BP Koirala Memorial Cancer Hospital Annual Report, 583(19.73%) cervix uteri, 199 (6.73%) ovary, 31(1.01%) endometrium and 12(0.40%) valva cancer was reported.<sup>[6]</sup>

Cervical cancer is the most curable cancer if detected early at the precancerous stage<sup>[7]</sup> but the challenge is that 80% of women in the developing countries seek medical help only after they have developed signs and symptoms.<sup>[8]</sup> One of the most important prognostic factors for cancer is depends upon how early and in which stage the disease is diagnosed. Delay in diagnosis and treatment continues to be the greatest obstacle to be overcome to cure cancer early.<sup>[9]</sup>

Diagnostic delay covers the period from the patient's first experience of symptoms until diagnosis.<sup>[10]</sup> Reducing diagnostic delay may increase the proportion of early stage cancers, timely treatment and ultimately improve the rate of survival.<sup>[11]</sup> Delays may occur at different stages of the cancer diagnostic journey and cause of delay may be either patient or healthcare provider.<sup>[10,11]</sup> Commonly, delay is found further categorized into different component such as;

#### **Personal (patient) delay**

It refers to the time period from the patient experiences the symptoms to their first visit to the health institution or medical care. Short personal delay is upto 60 days and more than 60 days is long delay.<sup>[12,13]</sup>

#### **Health Care Provider delay (Referral delay)**

The time period between patient's first presentation to the health care provider (HCP) and the final referral by HCP to the cancer diagnostic center. The period of 30 days or less was defined as "short HCP delay" and more than 30 days was referred as "long HCP delay".<sup>[14]</sup>

#### **Diagnostic delay (diagnostic waiting time)**

It refers to waiting time for all relevant investigations of symptoms in the diagnostic center. The period of 7 days or less was defined as "short diagnostic delay and more than 7 days was defined "long diagnostic delay".<sup>[12]</sup>

#### **Total diagnostic delay**

The time between onset of symptoms of cervical cancer and confirmed diagnosis. [Total diagnostic delay = patient delay + health care provider delay + diagnostic delay]. The period of 90 days or less as "total short diagnostic delay" and more than 90 days was defined as "total long diagnostic delay".

#### **Treatment delay**

The time period of patient waiting to get treatment after conformed diagnosis.<sup>[13-16]</sup> The period of 30 days or less was defined as "short treatment delay" and more than 30 days was referred as "long treatment delay".

A nationwide survey in Denmark, diagnostic delays of gynecological cancer was found in all parts of the diagnostic pathway. Total diagnostic delay has remained long with a median delay of 12 weeks from the time patients experience symptoms until the time they receive treatment; the 10% experiencing the longest delay wait for 41 weeks. Minority of patients experiencing very long delays. Ovarian cancer patients experienced significantly shorter delays compared with other gynecological cancer patients in all parts of the health care system.<sup>[17]</sup>

The study regarding delays in diagnosis of cervical cancer in Nepal estimates that the median total diagnostic delay was 157 days with more than three fourth (77.3%) of the

patients having longer total diagnostic delay of >90 days. Out of the total diagnostic delay, median patient delay, median health care provider delay, median referral delay and median diagnostic waiting time were 68.5 days, 40 days, 5 days and 9 days respectively. Majority of the patients had experienced longer delay of each type except referral delay. Fifty seven percent of the patients had experienced longer patient delay of >60 days, 90% had suffered longer health care provider delay of >1 week, 31.8% had longer referral delay of >1 week and 66.2% had waited >1 week at diagnostic center for final diagnosis.<sup>[12]</sup>

## **MATERIALS AND METHODS**

Descriptive cross-sectional research design was used to assess the delay diagnosis and treatment of gynecological cancer among women. Study was conducted in B.P. Koirala Memorial Cancer Hospital (BPKMCH) Chitwan, Nepal. It is a national cancer referral centre of Nepal lies in Chitwan district also known as the medical city of Nepal. All the women admitted in oncology ward of BPKMCH Chitwan Nepal for cancer treatment were taken as sample. A total of 422 women who were histologically diagnosed with gynecological cancer (Old and New) were selected as sample by using non-probability sampling. The sample size was calculated by taking 50% prevalence and considering a non-response rate of 10%, the total sample size of the study was 422. Ethical clearance was obtained from Chitwan Medical College Institutional Review Committee (CMC-IRC). Administrative approval for data collection was obtained from BPKMCH, Chitwan. Verbal informed consent was taken from each respondent after explaining the purpose of the study. Data was collected from September 5, 2019 to July 30, 2020 by using semi structured interview schedule. Privacy and confidentiality was maintained during data collection. For analysis, all collected data was reviewed and checked manually for completeness, consistency and accuracy. Subsequently, the data was coded and entered into EPI data 3.1. The entered data was then exported into IBM SPSS version 20 for analysis. The data was analyzed by using descriptive statistics (frequency, percentage, mean, median and standard deviation). Inferential statistics (chi-square) was calculated.

## RESULTS

Table 1: Socio-Demographic Characteristics of Respondents. n=422.

Variables	Number	Percent
<b>Age ( in years)</b>		
<40	64	15.2
40-59	249	59.0
>59	109	25.8
Mean $\pm$ SD=51.19 $\pm$ 12.11, Min=12, Max=79		
<b>Marital status</b>		
Unmarried	12	2.8
Married	410	97.2
<b>Educational status</b>		
Illiterate	345	81.8
Literate	77	18.2
<b>Occupation</b>		
Business	8	1.9
Daily wages	7	1.7
Agriculture	201	47.9
Homemaker	202	48.1
Foreign employment	2	0.47
<b>Types of family</b>		
Nuclear	374	88.6
Joint	48	11.4
<b>Length of family income sufficient</b>		
For 3 months	28	6.6
For 6 months	188	44.5
For 12 months	206	48.8

Table 1 shows that 59.0% of respondents were from the age group of 40-59 with mean and standard deviation as 51.19 $\pm$ 12.11, minimum age was 12 years and maximum age was 79 years, 97.2% of the respondents were married, 18.2% of the respondents were literate. Likewise, 48.1% of the respondents were homemaker,

88.6% of the respondents were living in a nuclear family and 48.8% of the respondents said that their family income was sufficient for 12 months. Similarly, 27.3% of the respondents were from province number 5 and 87.7% of the respondents follow Hindu religion (not shown in table).

Table 2: Disease and Treatment Related Information of Respondents. n=422.

Variables	Number	Percent
<b>Place of first visit after appearance of symptoms</b>		
Traditional healer/ herbal medicine	51	12.1
Health facility	371	87.9
<b>Types of health facility visited (n=371)</b>		
Government facility	97	26.14
Private facility	274	73.85
<b>Reason for spending time in general treatment (n=371)</b>		
Following doctor's advice	83	22.37
Due to personal problems	72	19.40
Completing the course of prescribed medicine	155	41.77
Waiting for report	61	16.44
<b>Types of co- morbidity present (n=50)</b>		
Hypertension	34	68.0
Diabetes	10	20.0
Hypothyroidism	6	12.0
<b>Diagnosis of respondents</b>		
Cervical cancer	302	71.6
Endometrial cancer	17	4.0
Ovarian cancer	94	22.3
Valval cancer	9	2.1

<b>Types of treatment received first and waiting time to start treatment</b>		
Chemotherapy Median= 7 days, Min=1 day , Max=120 days	174	41.23
Surgery Median= 30 days, Min=2 day , Max=180 days	120	28.43
Radiation Median= 30 days, Min=3 day , Max=120 days	128	30.33
<b>Reason for waiting treatment</b>		
Hospital delay	298	70.61
Patient (personal) delay	124	29.38

Table 2 shows that 87.9% of the respondents visited health facility first when they experience symptoms and among them, 73.85% of them visited private health facility, 41.77% of the respondents said that they spent their time in general health facility to complete the course of prescribed medicine, 11.8% of the respondents had co-morbidities and among them 68.0% were suffered from hypertension. Like as, 71.6% of the respondents were diagnosed as cervical cancer. Regarding treatment of cancer at first, 41.23% received chemotherapy and it

was started minimum 1 day, maximum 120 days (4 months) and median 7 days. Similarly, 28.43% of respondents underwent surgery and minimum 2 days, maximum 180 days (6 months) and median was 30 days. Likewise, 30.33% of them received radiation therapy and radiation started minimum day was 3, maximum day was 120 and median was 30 days. Regarding reason for delay, 70.61% said hospital and 29.38% said personal (self).

**Table 3: Delay in Different Phases of Cancer Treatment. n=422.**

<b>Variables</b>	<b>Number</b>	<b>Percent</b>
<b>Personal (patient) delay (in days)</b>		
Short delay ( $\leq 60$ )	254	60.2
Long delay ( $> 60$ ) Median=60, IQR=( $Q_1, Q_3$ )=(30,90), min=2, max=365	168	39.8
<b>Health Care Provider's delay (in days )</b>		
Short delay ( $\leq 30$ )	312	73.9
Long delay ( $> 30$ ) Median=30, IQR=( $Q_1, Q_3$ )=(15,46.25),min=1, max=300	110	26.1
<b>Diagnostic delay in days (waiting time for confirmed diagnosis)</b>		
Short delay( $\leq 7$ )	86	20.4
Long delay( $> 7$ ) Median=10, IQR=( $Q_1, Q_3$ )=(10,15), min=3 ,max=90	336	79.6
<b>Total diagnostic delay (in days)</b>		
Short delay ( $\leq 90$ )	191	45.3
Long delay ( $> 90$ ) Median=100, IQR=( $Q_1, Q_3$ )=(60,165), min=15, max=672	231	54.7
<b>Treatment delay (in days)</b>		
Short delay ( $\leq 30$ )	335	79.4
Long delay ( $> 30$ ) Median=15, IQR=( $Q_1, Q_3$ )=(7,30), min=1, max=180	87	20.6

Table 3 shows that delay in different phases of cancer treatment. Majority (60.2%) of the respondents had short personal delay, 73.9% had short health care provider's delay, 79.6% had long diagnostic delay, 54.7% had long total diagnostic delay and 79.4% had short treatment delay.

**Table 4: Respondents' Personal Factors of Delay Diagnosis. n=422.**

Variables	Number	Percent
<b>Afraid of cancer diagnosis</b>		
No	198	46.9
Yes	224	53.1
<b>Expensive treatment</b>		
No	11	2.6
Yes	411	97.4
<b>Family Support</b>		
No	79	18.7
Yes	343	81.3
<b>Anxious for leaving home/family</b>		
No	92	21.8
Yes	330	78.2
<b>Ignore of cancer treatment</b>		
No	370	87.7
Yes	52	12.3
<b>Feel shy for seeking the treatment</b>		
No	101	23.9
Yes	321	76.1
<b>Visit alone to cancer hospital</b>		
No	408	96.7
Yes	14	3.3
<b>Distance to reach cancer hospital (in hour)</b>		
<4	89	21.07
4-12	303	71.80
>12	30	7.10
<b>Max=72, min=1/2 mean=7.56</b>		

Table 4 shows the respondents' personal factors in delay diagnosis of cancer. More than half (53.1%) of the respondents responded that afraid of cancer diagnosis was the reason of delay diagnosis, 97.4% of them responded expensive treatment, 18.7% said that they did not get family support, 78.2% of the them said that they

were anxious for leaving home/family, 12.3% said the reason was ignorance of cancer treatment, 76.1% of them did not seek treatment because of feeling shy, 3.3% visited cancer hospital alone, and 66.4% of them said that the reason was long distance to reach cancer hospital.

**Table 5: Association Between Socio-Demographic Variables and Health Care Provider's/Referral and Diagnostic Delay.**

Variables	Health Care Provider's/Referral Delay			
	Short delay ( $\leq 30$ days) No. (%)	Long delay ( $> 30$ days) No. (%)		
<b>Occupation</b>				
Housewife	134(66.3)	68(33.7)		
Agriculture	165(81.3)	38(18.7)		
Others	13(76.5)	4(23.5)	11.792	0.003
<b>Distance to reach cancer hospital</b>				
<4hrs	72(72.0)	28(28.0)		
4-12hrs	210(75.0)	70(25.0)		
>12hrs	22(66.7)	11(33.3)	1.231	0.040
	Diagnostic Delay			
	Short delay ( $\leq 7$ days) No. (%)	Long delay ( $> 7$ days) No. (%)		
<b>Education Status</b>				
Illiterate	60(17.4)	285(82.6)		
Literate	26(33.8)	51(66.2)	10.403	0.001
<b>Level of education</b>				
Basic level	18(41.9)	25(58.1)		

Secondary and above	8(23.5)	26(76.5)	2.853	0.041
<b>Duration of family income sufficient</b>				
3 months	3(10.7)	25(89.3)		
6 months	29(15.4)	159(84.6)		
12 months	54(26.2)	152(73.8)	8.777	0.012

\*Significance level at 0.05

Table 5 shows that there was significant association between healthcare provider's delay and occupation (p=0.003) and distance to reach cancer hospital (p=0.040). Similarly, diagnostic delay was statistically

association with educational status (p=0.001), level of education (p=0.041), duration of family income sufficient (p=0.012).

**Table 6: Association between Socio-demographic Variables and Total Diagnostic and Treatment Delay.**

Variables	Total Diagnostic Delay			
	Short delay ( $\leq 90$ days) No. (%)	Long delay ( $> 90$ days) No. (%)		
<b>Marital Status</b>				
Unmarried	2(16.7)	10(83.3)		
Married	189(46.1)	221(53.9)	4.076	0.043
<b>Educational Status</b>				
Illiterate	148(42.9)	197(57.1)		
Literate	43(55.8)	34(44.2)	4.258	0.039
<b>Occupation</b>				
Housewife	76(37.6)	126(62.4)		
Agriculture	109(53.7)	94(46.3)		
Others	6(35.3)	11(64.7)	11.265	0.004
	Treatment Delay			
	Short delay ( $\leq 30$ days) No. (%)	Long delay ( $> 30$ days) No. (%)		
<b>Age years</b>				
<40	50(78.1)	14(21.9)		
40-59	188(75.5)	61(24.5)		
>59	97(89.0)	12(11.0)	8.502	0.014

\*Significance level at 0.05

Table 6 shows that there was statistically significant association between total delay and marital status (p=0.043), educational status (p= 0.039) and occupation

(0.004). Treatment delay was statistically significant with age (p=0.014).

**Table 7: Association between Personal Factors and Different Delays.**

Variables	Personal Delay		$\chi^2$	p-value
	Short delay ( $\leq 60$ days) No. (%)	Long delay ( $> 60$ days) No. (%)		
<b>Afraid of cancer diagnosis</b>				
No	134(67.7)	64(32.3)		
Yes	120(53.6)	104(46.4)	8.727	<b>0.003</b>
<b>Ignorance for cancer treatment</b>				
No	235(63.5)	135(36.5)		
Yes	19(36.5)	33(63.5)	13.845	<b>0.000</b>
<b>Shy feeling</b>				
No	70(69.3)	31(30.7)		
Yes	184(57.3)	137(42.7)	4.606	<b>0.032</b>
	Total Diagnostic Delay			
	Short delay ( $\leq 90$ days) (No. %)	Long delay ( $> 90$ days) (No. %)		
<b>Afraid of cancer diagnosis</b>				
No	104(52.5)	94(47.5)		

Yes	87(38.8)	137(61.2)	7.946	<b>0.005</b>
<b>Ignorance for cancer treatment</b>				
No	179(48.4)	191(51.6)		
<b>Yes</b>	12(23.1)	40(76.9)	11.780	<b>0.001</b>

Table 7 shows that personal delay was statistically significant with afraid of cancer diagnosis ( $p=0.003$ ), ignorance for cancer treatment (0.000) and feeling shy ( $p=0.032$ ). Similarly total diagnostic delay was significant association with afraid of cancer diagnosis ( $p=0.005$ ), ignorance for cancer treatment (0.001).

## DISCUSSION

Delay is confused to describe diverse conceptualizations of 'delay'.<sup>[18]</sup> Some study have operationalized delay diagnosis on the basis of stage of cancer and some study have operationalized on the basis of days, weeks and months and some operationalized the patient delay estimates are based on patients reporting about presence of symptoms.<sup>[12, 19, 20]</sup>

In this study, out of 422 gynecological cancer, 71.6% of the respondents were diagnosed as cervical cancer, second most ovarian cancer 22.3%, endometrial 4% and valve is 2.1%. The findings of the study shows that the first commonest gynecological cancer in developing countries was cervical and second is ovarian cancer and vulva cancer constitutes 3% worldwide.<sup>[3]</sup> Finding of this study is supported by the findings of B.P. Koirala memorial cancer hospital's annual report that shows that most of the gynecological cancer patient were cervix uteri, ovary, endometrium, vagina and valve.<sup>[6]</sup>

In this study delay was categories into two groups (short delay and long delay) similar to the components of delays diagnosis of cancer that have been applied in previous study.<sup>[12]</sup> Findings of this study shows delay in different phases of cancer treatment. More than half (60.2%) of the respondents had short personal delay ( $\leq 60$  days) and 39.8% had long personal (patient) delay ( $>60$  days), the median is 60 days; the range of patient delay was 2-365 days. Likewise, 79.6% had long diagnostic delay ( $>7$  days) and 20.4% had short diagnostic delay ( $\leq 7$  days) and the median is 10 days. Same as 54.7% had long total diagnostic delay ( $>90$  days) and 45.3% had short total diagnostic delay ( $\leq 90$  days) and the median of total diagnostic delay was 100 days and the longest total delay was 672 days. These types of diagnostic delay were slightly lower than that of previous study.<sup>[12]</sup> Similarly finding is reported in the previous study which shows that the median of total diagnostic delay was 101 days **and** the longest delay with a total delays was 436 days or more.<sup>[20]</sup> In this study, the total diagnostic delay was statistically significant to marital status (unmarried), educational status (illiterate), occupation (other), afraid of cancer diagnosis and ignorance for cancer treatment. Findings of study of shows that the literate women were less likely to have late diagnosis.<sup>[21]</sup>

In this study, the median of health care provider's delay was 30 days, 73.9% had short delay ( $\leq 30$  days) and 26.1% had long delay ( $>30$  days). The result is also lower than previous research findings that shows the median health care provider delay was 40 days.<sup>[14]</sup> Health care provider delay (referral delay) was statistically significant to the occupation (homemaker) and distance to reach cancer hospital ( $>12$ hrs). Findings of the study conducted by Macleod et al (2019) shows that lower educational status was associated with referral delay.<sup>[22]</sup>

In this study, 79.4% had short treatment delay ( $\leq 30$ days) and 20.6% had long delay ( $>30$  days) and the median of treatment delay was 15 days. Majority (70.61%) of the respondents responded that the reason of treatment delay was hospital cause. Delay in the treatment might be over flow of patient, or lack of resources. Due to that reason patient might be kept in waiting list to start treatment. The study of Isaac et al.(2014) showed that the major cause of treatment delay in cancer patient was long time to carry out the investigation to conformed final diagnosis and some problems of transport and financial.<sup>[23]</sup> Another research showed that treatment delays in testicular cancer also resulted from misdiagnosis or waiting lists.<sup>[24]</sup> The other research showed that from the outpatient visit only a quarter of women had treatment within 31 days first definitive treatment and 18% patient waited more than the target of 62 days for their treatment.<sup>[25]</sup> The treatment delay was statistically significant among the respondents whose age was 40-59 years. Delay in this age group might be busy in their job and household work.

In this study, personal delay was statistically significant to personal factors like afraid of cancer diagnosis, ignorance for treatment and shy feeling for health check up. It is consistent with the previous study conducted by Smith Pope, Botha (2005) where the study showed fear, shame and embarrassment are the cause of delay diagnosis.<sup>[26]</sup> The another research conducted by Deshmukh et al (2017) showed that most common cause of delay in diagnosis was lack of awareness about the symptom of cancer, feeling shy, financial problems, not diagnosed and referred at periphery.<sup>[27]</sup> The diagnostic delay in this study was statistically significant with education status, level of education and low income. Similar finding is reported that diagnostic delay of endometrial cancer in patients due to lower socio-economical status.<sup>[28]</sup>

## CONCLUSION

Based on the findings of the study, it is concluded that more than half of the women have total long diagnostic delay (maximum upto 672 days). Almost 4/5<sup>th</sup> of women

have long delay in diagnosis (delay in report waiting) maximum upto 90 days. The maximum waiting time was 4-6 months for treatment of cancer after diagnosis. So, awareness programme is necessary for women for early seeking of medical help. Health care provider from general and cancer hospital should consider it seriously for the timely treatment of those women suffered from gynecological cancer.

## REFERENCES

- Iyoke CA, Ugwu GO. Burden of gynaecological cancers in developing countries. *World Journal of Obstetrics and Gynecology*, 2013; 2(1): 1-7.
- Unit EI. Breakaway: The global burden of cancer—Challenges and opportunities. A report from the Economist Intelligence Unit. The Economist. [https://assets-livestrong-org.s3.amazonaws.com/media/site\\_proxy/data/c49ced3068f7205319cb1edf653dd91e0baee3ba.pdf](https://assets-livestrong-org.s3.amazonaws.com/media/site_proxy/data/c49ced3068f7205319cb1edf653dd91e0baee3ba.pdf). 2009.
- Sankaranarayanan R, Ferlay J. Worldwide burden of gynaecological cancer: the size of the problem. *Best practice & research Clinical obstetrics & gynaecology*, 2006; 20(2): 207-25.
- Poudel KK, Huang Z, Neupane PR. Trend of cancer incidence in Nepal from 2003 to 2012. *Asian Pacific Journal Cancer Prevention*, 2016; 17(4): 2171-75.
- Pun CB, Pradhananga KK, Siwakoti B, Subedi K, Moore MA. Malignant neoplasm burden in Nepal-Data from the seven major cancer service hospitals for 2012. *Asian Pacific Journal of Cancer Prevention*, 2016; 16(18): 8659-63.
- B.P. Koirala Memorial Cancer Hospital (2016). Annual report 2016. Retrieved <http://www.bpkmch.org.np/sites/default/files/BPKMCH/Annual Report 2016New.pdf>
- Thomson CS, Forman D. Cancer survival in England and the influence of early diagnosis: what can we learn from recent EURO CARE results?. *British journal of cancer*, 2009; 101(2): S102-9.
- Chadza E, Chirwa E, Maluwa A, Kazembe A, Chimwaza A. Factors that contribute to delay in seeking cervical cancer diagnosis and treatment among women in Malawi. *Health*, 2012; 04(11): 1015-1022.
- Vinh-Hung V, Bourgain C, Vlastos G, Cserni G, De Ridder M, Storme G, Vlastos AT. Prognostic value of histopathology and trends in cervical cancer: a SEER population study. *BMC cancer*, 2007; 7(1): 164.
- Hansen RP, Olesen F, Sørensen HT, Sokolowski I, Søndergaard J. Socioeconomic patient characteristics predict delay in cancer diagnosis: a Danish cohort study. *BMC health services research*, 2008; 8(1): 49.
- Allgar VL, Neal RD. Delays in the diagnosis of six cancers: analysis of data from the National Survey of NHS Patients: Cancer. *British journal of cancer*, 2005; 92(11): 1959-70.
- Gyenwali D, Khanal G, Paudel R, Amatya A, Pariyar J, Onta S R.. Estimates of delays in diagnosis of cervical cancer in Nepal. *BMC Womens Health*, 2014; 14(29).
- Basu A, Ghosh D, Mandal B, Mukherjee P, Maji A. Barriers and explanatory mechanisms in diagnostic delay in four cancers—A health-care disparity?. *South Asian Journal of Cancer*, 2019; 8(4): 221.
- European Society for Medical Oncology (ESMO). (2016, December 7). Patients wait four months before seeking cancer diagnosis. *ScienceDaily*. Retrieved August 31, 2020 from [www.sciencedaily.com/releases/2016/12/161207091103.htm](http://www.sciencedaily.com/releases/2016/12/161207091103.htm)
- Bright K. What health care system delays reveal about inequalities in breast cancer medicine and global health. *Cancer*, 2015; 121(13): 2124-6.
- Robinson KM, Christensen KB, Ottesen B, Krasnik A. Socio-demographic factors, comorbidity and diagnostic delay among women diagnosed with cervical, endometrial or ovarian cancer. *European Journal of Cancer Care*, 2011; 20(5): 653-61.
- Robinson KM, Ottesen B, Christensen KB, Krasnik A. Diagnostic delay experienced among gynecological cancer patients: a nationwide survey in Denmark. *Acta obstetrica et gynecologica Scandinavica*, 2009; 88(6): 685-92. DOI: 10.1080/00016340902971482
- Dobson CM, Russell AJ, Rubin GP. Patient delay in cancer diagnosis: what do we really mean and can we be more specific?. *BMC health services research*, 2014 Dec; 14(1): 1-6.
- Andersen RS, Vedsted P, Olesen F, Bro F, Søndergaard J. Patient delay in cancer studies: a discussion of methods and measures. *BMC health services research*, 2009 Dec; 9(1): 1-7.
- Vandborg MP, Christensen RD, Kragstrup J, Edwards K, Vedsted P, Hansen DG, Mogensen O. Reasons for diagnostic delay in gynecological malignancies. *International Journal of Gynecologic Cancer*, 2011 Aug 1; 21(6).
- Gyenwali D, Pariyar J, Onta SR. Factors associated with late diagnosis of cervical cancer in Nepal. *Asian Pac J Cancer Prev*, 2013 Jan 1; 14(7): 4373-7.
- Macleod U, Mitchell ED, Burgess C, Macdonald S, Ramirez AJ. Risk factors for delayed presentation and referral of symptomatic cancer: evidence for common cancers. *British journal of cancer*, 2009 Dec 3; 101(S2): S92-101.
- Isaac U, Isaac JS, Isaac GJ. Causes of delay in cancer diagnosis. facilities. 10:11. *ISRA Medical Journal* 2013; 5 (2). <http://www.imj.com.pk/wp-content/uploads/2013/07/52-OA5.pdf>
- Chapple A, Ziebland S, McPherson A. Qualitative study of men's perceptions of why treatment delays occur in the UK for those with testicular cancer. *British journal of general practice*, 2004 Jan 1; 54(498): 25-32.
- Johnson N, Miles T, Bailey D, Tylko-Hill K, Das N, Ahson G, Waring K, Acheson N, Voss M, Gordon J, Keates-Porter S. Delays in treating endometrial



- cancer in the South West of England. *British Journal of Cancer*, 2011 Jun; 104(12): 1836-9.
27. Smith LK, Pope C, Botha JL. Patients' help-seeking experiences and delay in cancer presentation: a qualitative synthesis. *The Lancet*, 2005 Sep 3; 366(9488): 825-31.
  28. Deshmukh VL, Rathod AD. Delays in reporting of cancer cervix in rural India: sociodemographic and reproductive correlation. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*; 6(10): 4517.
  29. Lyratzopoulos G, Abel GA, Brown CH, Rous BA, Vernon SA, Roland M, Greenberg DC. Socio-demographic inequalities in stage of cancer diagnosis: evidence from patients with female breast, lung, colon, rectal, prostate, renal, bladder, melanoma, ovarian and endometrial cancer. *Annals of oncology*, 2013 Mar 1; 24(3): 843-50. doi: 10.1093/annonc/mds526