



## Review article

## Challenges to cervical cancer treatment in Bangladesh: The development of a women's cancer ward at Dhaka Medical College Hospital



N. Haque<sup>a</sup>, A.F.M.K. Uddin<sup>b</sup>, B.R. Dey<sup>c</sup>, F. Islam<sup>a</sup>, A. Goodman<sup>d,\*</sup>

<sup>a</sup> Department of Obstetrics and Gynecology, Gynae Oncology Unit, Dhaka Medical College, Dhaka, Bangladesh

<sup>b</sup> Department of Radiation Oncology, National Institute of ENT, Dhaka, Bangladesh

<sup>c</sup> Department of Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

<sup>d</sup> Department of Obstetrics and Gynecology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

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## ABSTRACT

Cervical cancer is the second most common cause of female cancer mortality worldwide. Concurrent chemoradiotherapy represents the standard of care for patients with stages IB2 to IVa cervical cancer. Unfortunately radiation therapy capacity is severely limited to non-existent in many Low and Middle-Income Countries. One solution has been to use chemotherapy to reduce tumor size to allow for radical surgery or in the case of inoperable cancers, as a placeholder until radiation is available. In Bangladesh, there has been the progressive development of resources for the treatment of women with gynecologic cancers. However, radiation therapy resources are limited with a six-month waiting period to receive radiation. Neoadjuvant chemotherapy (NACT) remains the main primary treatment intervention for women with advanced cervical cancer in Bangladesh. This implementation study summarizes of the experience and challenges to caring for women in a new gynae-oncology ward at Dhaka Medical College Hospital, a 2600 bed government hospital in Dhaka, Bangladesh.

## 1. Introduction

Cancer is a global problem accounting for almost 13% of all deaths worldwide. This equates to over seven million people a year, more than is caused by HIV/AIDS, TB and malaria combined (Sharma et al., 2011). Cervical cancer is the fourth most frequent cancer among women worldwide and the most frequent cancer among women in Africa, Asia, and South America with an estimated incidence of 528,000 per year with 266,000 annual cervical cancer deaths (Globocan, 2012). Although there is effective screening for cervical cancer, it continues to be a healthcare problem in developing countries where effective screening programs are limited (Saslow et al., 2012; Denny et al., 2017).

Cervical cancer is the second leading malignancy, in terms of both incidence and mortality, among Bangladeshi women (Globocan, 2012). While incidence and treatment modalities for cervical cancer have been previously investigated in Bangladeshi populations (Hussain, 2013), there is virtually no published information regarding outcomes among those treated from cervical cancer. There are significant challenges to the development of infrastructure for cancer care in Bangladesh. Data collection in resource-limited countries has been challenging and new options using low-tech applications have been suggested (Perosky et al., 2015). Additionally there is a limited physical infrastructure and

deficient resources to treat cancer such as an inadequate number of radiotherapy units.

The opportunities for cancer care for women in Bangladesh will depend on their socioeconomic status. With a total country population of 162,910,864 and 18.5% of the population making < 1.9 USD per day, many Bangladeshis will receive care through government sponsored hospitals and health centers (Worldometer, 2017; World Bank, 2017).

While nationwide, there are approximately twenty hospitals that offer cancer care, most oncology referrals are directed to public hospitals. The Dhaka Medical College Hospital is overwhelmed by the influx of patients, which greatly outstrips the number of inpatient beds. The 300 bed National Institute for Cancer Research Hospital (NICRH) has an annual turnover of 15,000 to 20,000 cancer patients, and Bangabandhu Sheikh Mujib Medical University (BSMMU) 5000–6000 cancer patients. However the number of trained oncologists is inadequate for the volume of patients. Dhaka Medical College and Hospital (DMCH) is a medical college and hospital located in Dhaka, the capital city of Bangladesh (Dhaka Medical College Hospital, 2017). Since its creation in 1946, DMCH has served as the largest public hospital in Bangladesh. With the motto “no patient turned away”, DMCH admits and treats the poorest patients from all over Bangladesh.

\* Corresponding author.

E-mail address: [agoodman@partners.org](mailto:agoodman@partners.org) (A. Goodman).

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While the hospital has 2600 beds, an average daily census is 3000 to 3500 patients as patients are doubled up in beds, lie on the floor on mats in the wards, the hospital hallways, and the stairwells. Fifteen percent of patients are able to pay for medical care and the remainder receives free care. In 2015, a small gynae-oncology unit was created at DMCH. This review reports on the recent experience with the development of a women's cancer program at DMCH.

## 2. Materials and methods

The literature on chemotherapy and radiation for women with inoperable cervical cancer in LMIC was reviewed. Data from Bangladesh was abstracted from Globcan, World Bank, and current literature from Bangladesh (Globcan, 2012; Hussain, 2013; Hussain and Sullivan, 2013; World Bank, 2017). The experience of the treatment of women with cervical cancer at DMCH was abstracted from the recent written tumor board notes from the department of obstetrics and gynecology.

## 3. Women's services at Dhaka Medical College Hospital

The facilities for the care of women patients includes a large ward for obstetrical patients, a second large ward for gynecologic and post-operative patients, a ward devoted to the care of women with pre-eclampsia and eclampsia, another ward for the care of women with obstetrical fistulas, and a new gynae oncology unit. There are no sinks or garbage facilities in the wards (Shahida et al., 2016). This structural lack is associated with hospital-acquired infection rates exceeding 30% (Weinshel et al., 2015). There is a daily average of 75 admissions to the department of Obstetrics and Gynecology at DMCH. A total of 339 beds are reserved for obstetric and gynecology patients. Table 1 shows the breakdown facilities and daily patient census.

The Gynae oncology ward opened in 2015 and has been at capacity since the beginning (Fig. 1).

Table 2 summarizes the total gynecologic oncologic admissions for 2015. Women with cervical cancer accounted for 19% of ward admissions. Forty-eight (38%) of these patients underwent Wertheim radical hysterectomies for cancers varying from stage Ib2 to IIb. Patients with bulky stage IIb cancers received NACT prior to surgery. The average wait for radiation therapy at DMCH is over six months. As a result, the most common management strategy for large cervical cancers is to administer chemotherapy with the hope of shrinking the cancer enough to allow a surgical resection. Patients with unresectable disease were referred for carboplatin and paclitaxel neoadjuvant chemotherapy followed by concurrent weekly cisplatin chemotherapy and external beam radiotherapy. Figs. 2 and 3 show the radiotherapy department at DMCH. In particular, 79 patients (62%) were treated with neoadjuvant chemotherapy. As these patients came from villages that took more than a day to travel to, the majority remained in hospital for chemotherapy administration. Patients who could return for outpatient

Table 1

Type of available hospital wards for Obstetrics and Gynecology at Dhaka Medical College Hospital and average daily patient statistics.

Hospital ward type	Number of patients in each ward
Obstetrics	177
Gynecology	142
Gynae oncology ward	25
Subfertility	5
Vesicovaginal fistula	43
Infection ward	10
General ward	49
Private room (cabins)	147
Total patients <sup>a</sup>	598
Total beds	319

<sup>a</sup> There are more patients than available beds leading to doubling up of patients per hospital bed.



Fig. 1. Gynae Oncology Ward at Dhaka Medical College Hospital.

Table 2

Number of women admitted to the Gynae Oncology Ward in 2015 at Dhaka Medical College Hospital.

Diagnosis	Number of patients
Cervical cancer	127
Ovarian cancer	320
Persistent gestational trophoblastic disease	197
Endometrial cancer	2
Vulvar cancer	12
Total	658

chemotherapy, received their chemotherapy in the six bed outpatient chemotherapy unit (Fig. 4). Chemotherapy regimens included various combinations including a platinum drug (see Table 3).

Follow-up and survival rates for the majority of these patients are unknown. There is no current capacity and infrastructure to track patients. The majority of the patients either come from rural villages or are slum dwellers with no fixed address in Dhaka.

## 4. Discussion

The success to creating a complex, multidisciplinary program to treat life-threatening cancers depends on multiple factors from the individual to societal. There are challenges and barriers to the development of such programs in resource limited countries. Primary Barriers are the immediate challenges that a physician may face to provide care. These may include: personal training limitations, lack of support staff, lack of equipment and supplies to allow ideal care. Secondary barriers are the surrounding environmental challenges within which a physician is placed such as the inability to travel due to traffic, political turmoil and strikes, the built environment of the hospital such as lack of sinks, garbage disposal, and poverty of the patient population that does not allow them to access care. This paper describes the development of a small women's cancer ward in the largest hospital in Bangladesh, Dhaka Medical College Hospital (DMCH). There are tremendous barriers to care for women with newly diagnosed cervical cancers, the leading gynecologic cancer in Bangladesh. In Bangladesh, 80% women present with advanced stage (Stage III–IV) cervical cancer, which is invariably fatal in this country (Hussain and Sullivan, 2013). Huge numbers of patients have to wait for radiotherapy, a scarce and limited resource. Invariably, the majority of these women do not receive care and die from the natural history of untreated cervical cancer. A growing strategy has been the use of neoadjuvant chemotherapy to either render

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