Appendix F: Basis for Input Assumptions and Calculation of Cost Components in the Cost-Effectiveness Model

Data Input Assumptions

For the cost-effectiveness model employed in chapter 3, several methods were used to choose base, high, and low estimates, Typically, after exclusion of irrelevant and seriously flawed studies, only a few studies remained. Where a single study was clearly more applicable to the elderly population than other studies, it was used as the base case; in other cases, the base case was derived from a study whose results were in the middle of the range of study findings available. For low and high estimates, the lowest and highest values from available studies were generally used. In some cases where a single study served as the base case, computed 95 percent confidence limits served as the extremes. Where no applicable studies are available at all, assumptions were based on the opinions of the expert panel (see app. C).

The sources and rationale for the individual estimates used in the model and presented in table 11 (ch. 3) are discussed in detail below.

Initial Conditions

- Cervical intraepithelial neoplasia (CIN--grades 1 and 2): Most initial conditions for CIN and carcinoma *in situ* are drawn directly from results in studies published in the literature. The prevalence of CIN at age 64 in the base case is drawn from Stern's study of women in a Los Angeles clinic (146), the more recent of the two large reported studies of dysplasia prevalence in this age group. The less recent study, which reported lower prevalence, was used directly as the source for the low estimate and indirectly as the source of the high estimate (the high estimate was the upper bound of the 95 percent confidence interval around the reported figure) (145).
- Carcinoma *in situ (CIS)/severe* dysplasia: Two studies are reported in the literature that measured the prevalence of CIS in older women and whose results are applicable to the initiation of the model. The base-case prevalence is drawn from a study of British Columbian women (46), the study with the largest reported sample of women in this age group that measured this parameter. This figure was also used as the low estimate. The high estimate is drawn from the second study, which reported a substantially higher prevalence (40).
- Early and late invasive cervical cancer (EICC, LICC): The prevalence of EICC and LICC are not reported in the literature in the way those terms are defined for the model. For this model, the reported overall prevalence of invasive cancer was combined with the reported fractions of cancers in the early or late stages to produce a stage-specific prevalence at the initiation of the model. Base and high estimates of the prevalence of invasive cancer are drawn from Dunn (42); low estimates are drawn from Mandelblatt et al. (92). Stage distributions of cancer at presentation are drawn from Fidler et al. (46) for the base case, Dickinson et al. (37) for the high estimate, and from data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER)[1] database for the low case (158).

Transition Probabilities

Death--Age-specific general population mortality probabilities (164) are applied for women in the healthy, CIN, and CIS states. A weighted average of the race-specific figures for each age is used, reflecting the racial

1 The SEER data base includes results of a cancer registry maintained in 9 different regions in the United States (16).

distribution of American women in 1980 (164). In the EICC and LICC states, mortality probabilities are taken from overall age-group specific cancer survival data (including deaths from other causes among cancer patients) in the National Cancer Institute's SEER (1978-1984) database (158). A weighted average of race-specific rates was applied to these mortality probabilities as well. Because the sources for these mortality probabilities are considered highly reliable, high and low estimates for sensitivity analysis were not made.

Progression Probabilities--The relationship of non-mortality transition probabilities to epidemiologic data is not straightforward, since standard epidemiologic statistics (mean duration, median duration, survival probability) do not always correspond directly to the terms of the model. With some simple assumptions and mathematical manipulation, however, the available epidemiologic statistics can be re-stated as annual probabilities of transition from one stage of disease to the next, the data items necessary for the model.[2] Only age-dependent progression probabilities (i.e., estimates derived from samples of older women) are used, because the extreme high and low assumptions bracket the available age-independent progression probabilities.

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2 Let p = annual transition probabi1ity, m = median duration, x = mean duration, and S_n = n-year survival probability. Assume that the distribution of transition times is exponential, and let r denote the rate constant of the exponential distribution. Then:

$$p = 1 - \exp(-r) \quad \text{(Eq. 1)}$$
$$m = (\ln 2) / r \quad \text{(Eq. 2)}$$
$$x = 1 / r \quad \text{(Eq. 3)}$$
$$S_n = \exp(-n \times r) = 1 - (1-p)^n \quad \text{(Eq. 4)}$$

Equation 1, 2, 3, and 4 can be used to determine r, depending on the statistics available, and the required probability, p, can then be calculated from equation 1. Since only those who do not die can undergo further state transitions, the actual transition probability used in the model is (1-f) x p, where f is the mortality probability. (For further information about these equations and exponential survival distributions in medical prognosis see Beck, Pauker & Kassirer (10).)

The base-case probability assumption for the progression from healthy to CIN is drawn from Stern (146), the only published study found that reported information on the incidence of dysplasia specifically for elderly women. Probabilities for progression to CIS and to EICC are drawn from Coppleson and Brown's simulation analysis of screening in elderly women (32).

High estimates of the incidence of CIN and the annual rate of progression from CIN to CIS are extrapolations from the base case, since few alternative estimates exist. High incidence of CIN is based on a 95 percent upper confidence bound of the reported estimate; high progression to CIS is calculated as 50 percent greater than the base-case value (since a confidence interval could not be applied to this estimate). The high estimate of progression from CIS to EICC is derived from the data presented by Kashgarian and Dunn (69).

Low estimates of CIN incidence and progression to CIS are derived from preliminary data on women being screened in British Columbia (96). These estimates are lower than the estimates that would result from extrapolations like those made to arrive at high estimates, so they were considered a more appropriate low assumption. The low estimate for progression to EICC is drawn from Dunn (42).

No published estimates are available on the annual progression rate from EICC to LICC. Consequently, the base, low, and high estimates were all based on the opinions of the expert panel (see app. C).

Regression **or Cure**--Women with CIN or CIS may exhibit spontaneous regression to the healthy state, but the rates of regression reported in the literature vary enormously. For the base case, the regression rate for CIN of 38.1 per 1,000 women with disease reported by Campion et al. (121) was used. The high estimate (265.0) is drawn from Robertson et al. (1 18), and the low estimate

(5.4) is drawn from Richart and Barron (1 14). For regression of CIS, the base and low estimates of zero were derived from the personal observations reported by members of the expert panel (app. C). The high estimate is drawn from Kinlen (71).

Women with recognized CIN and CIS may revert to the healthy state subsequent to treatment (cure). Cure is actually considered slightly more likely for women with CIS than women with CIN in the model, because it is assumed that in actual practice women with CIS receive more aggressive treatment, and thus it is more likely that the entire lesion will be removed with the initial treatment. Assumptions of cure rates used in the model are derived from conclusions of cure rates from four sources: 1) the opinions and experiences of members of the expert panel (app. C); 2) Creasman (34); 3) Shingleton and Orr (130); and 4) Nelson et al. (102).

The situation for EICC and LICC is different. Although some women with EICC are probably cured, data to estimate the probability of this are not available. This model therefore does not permit transitions from the invasive cancer states back to earlier stages. Consequently, the model will overestimate morbidity from invasive cancer; once a woman moves into the EICC stage, she will be categorized as having invasive cancer until she dies. This does not affect her chance of survival in the model, however. The death probabilities are based on all-cause mortality data in cohorts of women diagnosed in each stage; thus, in the model, a woman's statistical likelihood of dying depends only on the fact that she was diagnosed with EICC, not on the fact that the model continues to classify her in that category.

Recognition--Transition to a recognized state results either from screening or from diagnostic evaluation of symptoms.

The former possibility occurs only in years for which screening is designated in the program under study. Not all women will avail themselves of the screening opportunity, and among those who do, some women with disease will have false-negative smears. The overall transition probability is the product of the survival probability, the utilization probability, and the stage-specific Pap smear sensitivity.

Most Pap smear sensitivity results reported in the literature are within the range of 60 to 85 percent, with the majority of these finding sensitivities of 80 to 85 percent. One study reported very low sensitivity (35 percent) (122) and two studies reported sensitivities of over 90 percent (14,1 14). Most of these studies probably overstate real-world test accuracy, especially for elderly women. The model thus uses a low sensitivity estimate of 50 percent for all disease states (lower than that found in the bulk of studies, but higher than the lowest reported rate); it uses a base estimate of 75 percent for all disease states (within the range of the bulk of studies, but in the lower part of that range). The high-case estimate is in the upper range of the bulk of studies; in the high case, sensitivity is also permitted to be higher for invasive cancer than for non-invasive neoplasia (82 and 80 percent, respectively). This possibility is suggested in the results found by Boyes et al. (20) based on screening in the British Columbian population.

Symptoms do not usually arise from CIN or CIS. Invasive cancer, on the other hand, eventually becomes symptomatic in most cases. By combining the assumption that 80 percent of all women with late cancer who have not yet developed symptoms will do so within 1 year,[3] with the estimates used for the annual probability of progression from early to late cancer, it is possible to approximate numerically what the annual hazard of

3 Although this 80 percent assumption is entirely arbitrary, the true rate is almost certainly very high. Also, changing this assumption makes virtually no difference to model results unless the nunber is very low.

developing symptoms with early cancer must be to produce the observed distribution of stages among diagnosed women. The results of this calculation are used as the annual probability of recognition of EICC due to symptoms. High and low symptomaticity rates combine high and low progression probability rates with the 80 percent assumption.

Clearance- -In this model, "clearance" refers to the uncovering of false-positive Pap smear results among healthy women, which depends on the specificity of the Pap smear. As with sensitivity, specificity results presented in the literature probably overstate real-world test specificity for Pap smears from elderly women. Three studies report specificities of 99 percent or greater; one study reports a specificity of slightly under 95 percent. The model thus uses 99 percent as the high estimate of Pap smear specificity, 95 percent as the base-case estimate, and a much lower rate--87 percent--as a low estimate that might obtain under conditions of mediocre laboratory quality.

Cost Assumptions

The protocols of service described in chapter 3 were applied in the cost-effectiveness model to data from the National Hospital Discharge Survey (NHDS) to identify the in-hospital services used in each phase of care for cases with abnormal findings (either asymptomatic screened cases or symptomatic cases presenting for care). The NHDS data used included patients aged 65 and over who were discharged between 1984 and 1987 with a diagnosis of either malignant neoplasm of the cervix or CIS. Length of stay, discharge status, and surgical and non-surgical procedures coded from the face sheet of the medical record were printed out. Only those cases with malignant neoplasm or CIS as the first-listed diagnosis were used. The resulting set of data on 210 women was used as an indicator of services received by patients with diagnoses of invasive cervical cancer (ICC) in different stages of disease, and with CIS, according to current practices.

The NHDS data showed that the basic oncologic protocols for different stages of disease could be approximately matched to the service experience of admitted cases. The cost estimates used in this analysis followed the actual survey data with several modifications. The following describes features of this set of calculations.

- An assortment of pelvic surgical procedures that were received by ICC and CIS patients and interpreted to be related to the cancer diagnosis (although, unlike cervical biopsy, ionization, and hysterectomy, they were not in the basic protocol) were included in the inpatient care used in the cost estimation in chapter 3.
- In early cancer, patients receiving total or radical hysterectomies were considered to have received the more expensive radical (Wertheim) procedure that would constitute definitive treatment. CIS patients with hysterectomies were considered to have received the less expensive total hysterectomy operation.
- Bilateral salpingo-oophorectomy (removal of both ovaries and fallopian tubes) was not priced. It was usually coded in conjunction with a hysterectomy and was assumed to be included in the price of this procedure.[4]
- Doses of chemotherapy or radiation therapy were derived from lengths of stay for those receiving these services.
- Prices of services were derived as follows:

  - Hospital costs were based on 1986 statistics published by the American Hospital Association for all community hospitals. The given average expense per inpatient day was updated by applying the National Hospital Input Price Index (provided by the Office of

4 Based on the experience of Enpire Blue Cross/Blue Shield, the Medicare Part B carrier in the New York City area, a separate fee is not usually paid when these two procedures are done together.

the Actuary of the Health Care Financing Administration (HCFA).)[5]

- Fees for professional and clinical services were provided by HCFA, which supplied 1986 average allowed charges under Medicare for a list of procedures in the basic protocol for cervical cancer diagnosis and treatment in and out of the hospital. In addition, certain additional services (an assortment of pelvic surgical procedures that were received by elderly ICC and CIS patients in the NHDS and were interpreted to be related to the cervical cancer diagnosis, plus charges for different types of physician visits), were priced from 1987 Medicare average allowed charges. All prices were updated to 1988 by applying the Consumer Price Index component for professional medical services.

Quantity information for specific services (supplied by HCFA), together with Medicare allowed charges, was used to weigh prices when several types of biopsy or treatment were combined to develop per case averages in the cost estimates.

The basis for the cost figures applied in the model is presented in tables 19 through 26. Table 19 shows the prices for specific component procedures with their sources and the points in the calculations where each price figure was used. These components--e.g., the cost of a hospital visit, the cost of a particular procedure--are then combined in tables 20 through 26 into average cost figures per women with that condition for the appropriate package of services (e.g., diagnosis of CIS, treatment of EICC, followup of CIN).

In the tables, many procedures are prorated according to the proportion of women in that disease state category assumed to receive them. Thus, for example, in table 20, all women with CIN undergo colposcopy at the diagnostic workup, so the per-patient cost is the full amount of the procedure. Only one-third of women are assumed to receive a repeat Pap test, however, the attributable per-patient cost of this component is one-third of the cost of a smear. The proportion of women receiving various services is drawn largely from the NHDS data and represents an approximation of the proportion of women receiving various services under current medical practice.

5 This index, published in the Federal Register, excludes capital items and medical fees from the priced market basket.

Table 19--Prices for Services Related to Cervical Cancer

Service	Unit price	Source[a]	1988[b] Update	Where used i n estimation (see table number)
Office visit- -extended	$ 33.00	HCFA 1987	$35.23	20, 23, 25
Office visit- -intermediate..	25.00	HCFA 1987	26.69	20, 21, 23, 24, 25, 26
Hospital visit--initial comprehensive.	77.00	HCFA 1987	82.20	20, 21, 22, 23, 24, 25
Hospital visit--subsequent brief	20.00	HCFA 1987	21.35	20, 21, 22, 23, 24, 25
Hospital day.	500.81	AHA 1986	545.78	20, 21, 22, 23, 24, 25
Pap test.	7.35	HCFA 1986	8.37	20, 25
Colposcopy.....	46.76	HCFA 1986	53.22	
Colposcopy w/biopsy	84.10	HCFA 1986	95.71	
weighted average			71.56	20, 21, 23, 24
Chest X-ray	20.46	HCFA 1986	23.20	23, 26
Pelvic computed tomography scan.	119.48	HCFA 1986	136.00	23
Sigmoidoscopy.	119.66	HCFA 1986	136.20	23
Barium enema	40.71	HCFA 1986	46.34	23
Cystoscopy...	170.71	HCFA 1986	194.31	23
Intravenous pyelogram.	44.45	HCFA 1986	50.59	23, 26
Complete blood count	7.00	HCFA 1987	7.47	23
Blood urea nitrogen	7.00	HCFA 1987	7.47	23
Creatinine-blood	7.00	HCFA 1987	7.47	23
PeLvic sonogram	47.74	HCFA 1986	54.34	26
Cervical biopsy	40.43	HCFA 1986	46.02	20, 22
Other biopsies:				
cul de sac.	51.00	HCFA 1987	54.44	
uterus	53.00	HCFA 1987	56.58	
vagina	50.11	HCFA 1986	57.04	
vulva	50.85	HCFA 1986	57.88	
weighted average			56.33[d]/58.33[e]	20, 22
Dilation and curettage	251.84	HCFA 1986	286.66	21, 22, 23
Ionization	249.12	HCFA 1986	283.56	20, 21, 22, 23, 25
CIN treatments:				
cauterization	40.40	HCFA 1986	45.99	23
cryosurgery	64.29	HCFA 1986	73.18	21, 23, 25
laser surgery	165.99	HCFA 1987	177.20	
weighted average			58.91	20
Hysterectomy-totaL	933.10	HCFA 1986	1,062.03	21
Hysterectomy- radical..	1,525.56	HCFA 1986	1,729.50	23
Pelvic exenteration.	2,213.59	HCFA 1986	2,509.51	24
Bilateral oophorectomy.	373.00	HCFA 1987	398.39	23
Culdotomy	68.00	HCFA 1987	72.59	23
Dilation of cervical canal	39.00	HCFA 1987	41.63	23
Excision-vagina	95.52	HCFA 1986	108.73	23
Excision-vulva	69.77	HCFA 1986	79.42	21
Hysterectomy	370.00	HCFA 1987	394.99	23
Incision of cervix	42.00	HCFA 1987	44.84	23
Obliteration of vagina	470.00	HCFA 1987	501.75	21, 23
Repair-cystocele	408.00	HCFA 1987	435.56	21
Repair-cystocele/rectoce[e.	509.00	HCFA 1987	543.38	21
Unilateral oophorectomy.	373.00	HCFA 1987	389.19	23
Unilatera(salpingo-oophorectomy.	449.00	HCFA 1987	479.33	21
Vaginotomy	103.50	HCFA 1987	110.49	23
Radium implant[f].	70.49	HCFA 1986	80.23	23
Teleradiation	47.65	HCFA 1987	50.84	24
Chemotherapy	24.75	HCFA 1986	28.17	24
ExternaL radiation	44.70	HCFA 1986	50.87	24

ABBREVIATIONS: AHA = American Hospital Association; CIN = cervical intraepithelial neoplasia; HCFA = Health Care Financing Agency.

[a]AHA, 1986 data from American Hospital Association, Hospital Statistics 1987 Edition (Chicago, IL: American Hospital Association, 1989); HCFA 1986 and 1987 data from Part B Medicare Annua[Data System provided by M. McMuLLan Health Care Financing Administration, Baltimore, MO, personal communications, 1988; and W.J. Sobaski, Health Care Financing Ackninis-, tration, Baltimore, MD, personal communications. 1989.

[b]Based on comsumer price index for professional medical services (in medical care component) from Bureau of Labor Statistics; National Hospital Input Index from HeaLth Care Financing Administration, Office of the Actuary.

[c]Based on weighted average of allowed charges for the following: biopsy of uterus (l), vagina (4), CUL de sac (l), vulva ,(1), (1986 charges updated to 1988).

[d]Used for diagnostic admission.

[e]Used for diagnosis and treatment.

[f]Based on 44 cases from the NationaL Hospital Discharge Survey of elderly women receiving in-hospital care for cervical cancer.

SOURCE: Office of Technology Assessment, 1990.

Table 20--Estimated Costs of Diagnosing and Treating Cervical Intraepithelial Neoplasia (CIN-grades 1 and 2)

Service	Calculation of total cost[a]	Proportion of CIN cases receiving service	Average cost per person with CIN
Colposcopy	$98.25 procedure = $71.56 physician visit =$26.69	100%	$98.25
Repeat Pap test	$8.37	33%	$ 2.79
Ionization	$1,195.11 procedure = $283.56 hospital stay (1.5 days) = $818.67 initial inpatient physician visit = $82.20 additional inpatient visits (.5) = $10.67	30%	$358.44
Cervical biopsy	%6.02	62%	$28.53
Other biopsies	$87.50 (1.5 x $58.33)	100%	$87.50
	Subtotal		$57S.51
Treatment by cautery, cryosurgery or laser surgery	$94.14 procedure = $58.91 office visit = $35.23	100%	$94.14
	Total		$669.65

ABBREVIATION: CIN = cervical intraepithelial neoplasia.

[a]See table 19 for sources of component costs.

SOURCE: Office of Technology Assessment, 1990.

Table 21--Estimated Costs of Diagnosing and Treating Carcinoma **In** Situ

Service	Calculation of total cost[a]	Proportion of CIS cases receiving service[b]	Average cost per person with CIS
COlpOSCOpy	$98.25 service = $71.56 visit = $26.69	100%	$ 98.25
Total hysterectomy	$1,062.03	43%	$ 456.67
Ionization	$283.56	35%	$ 99.25
Dilation and curettage	$286.66	30%	$ 86.00
Other surgery	$340.44	35%	$ 119.15
Hospital stay	$2,892.63 (5.3 days x 545.78)	100%	$2,892.63
Initial physician visit	$82.20	100%	$ 82.20
Additional physician visits	$91.81 (4.3 x$21.35)	100%	$ 91.81
Total			$3,925.%

ABBREVIATION: CIS = carcinoma in situ.

aSee table 19 for sources of component costs.
All services except colposcopy are in-hospital services; proportions of cases receiving in-hospital services are based on 23 cases from the National Hospital Discharge Survey of elderly women receiving in-hospital care for CIS.
cIncludes cryosurgery, excision of vulva, obliteration of vagina, repair of cystocele, repair of cystocele and rectocele, and unilateral salpingo-oophorectomy.

SOURCE: Office of Technology Assessment, 1990.

Table 22--Estimated Costs of Diagnostic Admission for Cervical Cancer

Service	Calculation of total cost	Proportion of cervical cancer cases receiving service[a]	Average cost per person with cervical cancer
Dilation and curettage	$286.66	59%	$ 169.13
Cervical biopsy	$46.02	5.9%	$ 27.15
Other biopsies	$56.33	2.6%	$ 14.65
Ionization	$283.56	15%	$ 42.53
Hospital stay	$3,656.73 (6.7 days x 545.78)	100%	$3,656.73
Initial inpatient physician visit	$82.20	100%	$ 82.20
Additional inpatient physician visits	$121.70 (5.7x $21.35)	100%	$ 121.70
Total			$4,114.09

~See table 19 for sources of component costs.

[a]Based on 27 cases from the National Hospital Discharge Survey of elderly women with diagnostic admissions for cervical cancer.

SOURCE: Office of Technology Assessment, 1990.

Table 23--Estimated Costs of Diagnosing and Treating Early Invasive Cervical Cancer

Service package	Calculation of total cost[a]	Proportion of EICC cases receiving service[b]	Average cost per person with EICC
Outpatient services	Colposcopy:		
	service = $71.56		
	visit = $26.69		
	$98.25	100%	$ 98.25
	Staging:		
	Chest X-ray = $ 23.29		
	Pelvic coopted tomography scan = $136.00		
	Sigmoidoscopy = $136.20		
	Barium enema = $ 46.34		
	Cystoscopy = $194.31		
	Intravenous pyelogram = $ 50.59		
	Extended office visit = $ 35.23		
	Complete blood count = $ 7.47		
	Blood urea nitrogen = $ 7.47		
	Creatinine-blood = $ 7.47		
	$644.37	100%	$ 644.37
	Sub-total		$ 742.62
Inpatient services	Diagnostic admission[c] = $4,114.09	20%	$ 822.82
	Radioactive substance implant = $ 80.23	50%	$ 40.12
	Radical hysterectomy = $1,729.50	30%	$ 518.85
	Other surgery = $ 126.62	59%	$ 74.71
	Dilation and curettage = $ 286.66	11%	$ 31.53
	Ionization = S 283.56	5%	$ 14.18
	Hospital stay (10.1 days) = $5,512.38	100%	$ 5,512.38
	Physician visits = $ 82.20 ($21.35 x 9.1)	100%	$ 82.20
	Additional inpatient physician visits = $ 194.29 (9.1 days)	100%	194.29
	sub-total		$7,291.08
Total			**$8,033.70**

ABBRIVIATION cc = early Invasive cervical cancer.

[a] See table 19 for sources of cost components.
[b] Based on 44 cases from the National Hospital Discharge Survey of elderly women receiving care for EICC.
[c] See table 22 for source of costs.
[d] Includes bilateral oophorectomy, cauterization, cryosurgery, culdotomy, dilation of cervix, excision of lesion-vagina, hysterotomy, incision of cervix, obliteration of vagina, unilateral oophorectomy, vaginotomy.

SOURCE: Office of Technology Assessment, 1990.

Table 24--Estimated Costs of Diagnosing and Treating Late Invasive Cervical Cancer

Service package	Calculation of total cost[a]	Proportion of LICC cases receiving service	Average cost per person with LICC
Outpatient diagnostic workup	Colposcopy[b] = $ 98.25	100%	$ 98.25
	Staging[c] = $644.37	100%	$ 644.37
	Subtotal		**$ 742.62**
Inpatient services[d]	Diagnostic admission[h] = $4,114.09	30%	$1,234.23
	Chemotherapy (2 days)[e] = $ 61.95	23%	$ 14.25
	Teleradiation[c] (2.7 days)[f] = $ 136.86	14%	$ 26.26
	Other external radiation (20.3 days)[g] = $1,032.60	4%	$ 41.31
	Pelvic exenteration = $2,509.51	2%	$ 50.19
	Hospital stay (7.4 days) = $4,038.77	100%	$4,038.77
	Initial physician visit = $ 82.20	100%	$ 218.84
	Additional physician visits (6.4) = $ 136.64	100%	$ 136.64
	Subtotal		**$5,760.49**
Further treatment	Second admission excluding pelvic exenteration = $4,339.43	100%	$ 4,339.43
	Outpatient radiotherapy (30 visits) = $1,526.10	100%	$ 1,526.10
Total			**$12,232.00**

ABBREVIATION: LICC = late invasive cervical cancer.

[a] See table 19 for sources of cost components.
[b] See table 20 for cost of components.
[c] See table 23 for cost of components.
[d] Based on 116 cases from the National Hospital Discharge Survey of elderly women receiving in-hospital care for late cervical cancer.
[e] Based on length of stay for cases with chemotherapy and weighted average of allowed charges for different types of chemotherapy.
[f] Based on length of stay for cases with teleradiation.
[g] Based on length of stay for cases with other external radiation.
[h] See table 22 for cost of components.

Source: Office of Technology Assessment, 1990.

Table 25--Estimated Costs of Followup Care for CIN and CIS

Service package	Calculation	Proportion of total cost[a]	Proportion of CIN and CIS cases receiving service	Average cost per person with CIN and CIS
Followup year 1	4 office visits x $ 26.69		100%	$ 106.76
	1 Pap smear x $ 8.37		100%	$ 8.37
	Cryosurgery: service = $ 73.18 visit = $ 35.23 $ 108.41		10%	$ 10.84
	Ionization: Procecdure = $ 283.56 hospital stay (1.5 days) = $818.67 physician visits (during hospital stay) = $ 92.88 $1,196.11		5%	$ 59.74
	Subtotal			$ 185.71
Followup years 2 through 5	2 office visits annually x $ 26.69		100%	$213.52
	1 Pap smear annually x $ 8.37		100%	$ 33.48
	Subtotal			$247.00
Total				$ 432.71

ABBREVIATION: CIN = cervical intraepithelial neoplasia and CIS = carcinoma in situ.

[a]See table 19 for sources of cost components.

SOURCE: Office of Technology Assessment, 1990.

Table 26--Estimated Costs of Followup Care for Invasive Cervical Cancer

Service package	Calculation of total cost[a]	Proportion of ICC cases receiving service	Average cost per person with ICC
Early cancer followup year 1	4 office visits x $26.69 = $106.76 2 intravenous pyelograms x $50.59 = $101.18 2 chest x-rays x $23.29 = $46.58 2 pelvic sonograms x $54.34 = $108.68		
	cost.....$363.20	100%	$ 363.20
Early cancer followup years 2 through 5	2 office visits annually x $26.69 = $53.38 1 intravenous pyelograms x $50.59 = $ 50.59 2 chest x-rays x $23.29 = $ 46.58 1 pelvic sonogram x $54.34 = $54.34		
	Annual cost. $204.89	100% (x 4 years)	$ 819.56
	Total, followup care for early invasive cervical wincer....--. . . . . ------		**S1,182.76**
Late cancer followup years 1 through 3	4 office visits annually = $106.76 2 intravenous pyelograms = $101.18 2 chest x-rays = $ 46.58		
	Annual cost. $254.52	100% (x 3 years)	$ 763.56
Late cancer followup years 4 through 5	2 office visits annually = $ 53.38 1 intravenous pyelograms = $ 50.59 1 chest x-ray = $ 46.58 1 pelvic sonogram = $ 54.34		
	Annual cost. $181.60	100% (x 2 years)	$ 363.20
	Total, followup care for late invasive cervical cancer------- . . . . . -------		$1,126.76

ABBREVIATION: ICC = invasive cervical cancer.

[a]See table 19 for sources of cost components.

SOURCE: Office of Technology Assessment, 1990.