Does Routine Follow-Up after Patients Have Completed Adjuvant Therapy for Early-Stage Breast Cancer at a Cancer Center Improve Prognosis?

Rikiya Nakamura a  Shouko Hayama a  Ryoutarou Etou a  Toshiko Miyaki a  Keiko Oshida b  Masaki Oshida b  Yashushi Itou c  Tetsumori Kou d  Naohito Yamamoto a

aDivision of Breast Surgery, Chiba Cancer Center, Chiba, Japan; bCosmos Clinic, Chiba, Japan; cItou Shinkemigawa Clinic, Chiba, Japan; dMonoi Total Clinic, Chiba, Japan

Keywords
Breast cancer · Routine follow-up · Family physician

Abstract

Introduction: This study aimed to assess whether follow-up of patients with operative breast cancer at cancer centres (CCs) improved prognosis compared with follow-up by family physicians (FPs). Methods: The study included 254 patients who relapsed within 7 years from the first postoperative period. The patients were divided into two groups according to the follow-up facility: the CC and FP groups (the follow-up of patients was structured in the same way between FPs and CCs). There are 146 and 108 cases of recurrence in the CC and FP groups, respectively. The analysis targets of the two groups were determined using the propensity matching method based on the following 7 factors: oestrogen receptor status, progesterone receptor status, human epidermal growth factor receptor 2 status, St. Gallen category, menopausal status, surgical procedure, and receipt of postoperative chemotherapy at the time of surgery. Overall survival (OS) in both groups was analysed using the Kaplan-Meier method and compared using the log-rank test. Results: Overall, 97 patients each in the CC and FP groups who relapsed were analysed using the propensity matching method. The median recurrence-free survival periods were 1,676 and 994 days in the FP and CC groups, respectively, and were significantly longer in the FP group. However, the median OS starting from the day of surgery was 3,424 and 2,794 days in the FP and CC groups, respectively, with no significant difference. Conclusion: This study revealed that regular follow-up at CCs did not improve survival compared with regular follow-up by FPs.

Introduction

Routine follow-up after completion of adjuvant chemotherapy or radiotherapy should be accompanied by careful interviews [1–5]. If any chief complaint or abnormal findings are found, additional inspection is recommended. Routine follow-up by whole body imaging is not recommended in asymptomatic cases [6, 7]. Breast cancer practice guidelines [8, 9] state that follow-up by non-breast cancer specialists is permitted if the patient desires. However, many patients desire postoperative routine follow-up at a cancer centre (CC) [10–12]. When comparing CCs and family practitioners (FPs) for breast cancer follow-up, it is necessary to assess patient satisfaction and quality of care [13]. Follow-up of patients with early breast cancer needs to be standardised [14], and prospective clinical trials focusing on optimal follow-up are needed [15]. However, a prospective comparative study of long follow-up at CCs and FPs is practically difficult.
A clinical pathway is a health care management tool concerning the standardisation of care processes. We hypothesised that routine follow-up by the patient’s FP was acceptable using clinical pathways among CCs, FPs, and patients. Therefore, the system of regional medical cooperation (RMC) for postoperative breast cancer follow-up was started among our CC, FPs, and patients in July 2008. Herein, we report the long follow-up outcome of this RMC.

**Materials and Methods**

**Patients**

A total of 2,850 patients with stage I–III breast cancer underwent surgery from June 2007 to May 2014 at our CC. Approximately 70% of patients completed adjuvant chemotherapy or radiotherapy after surgery and underwent routine follow-up at regional alliance facilities of our FPs. For follow-up after breast cancer surgery, a CC or 1 of 32 FPs was selected according to the patient’s wishes. The FPs were all former general surgeons with experience in breast cancer surgery and patient treatment in hospitals. In addition, the FPs have taken a mammography course sponsored by the Japanese Central Organization on Quality Assurance of Breast Cancer Screening (JCOQABCS). They then passed a mammography reading examination and were certified by the JCOQABCS as screening mammography readers. In order to renew this certification, FPs are required to take a course every 5 years. The follow-up method was the same for both groups. The physical examination tests varied depending on the risk of recurrence as proposed by Goldhirsch et al. [16] (St. Gallen consensus). Six types of critical pathways were used in the RMC. Patients were divided into low-, intermediate-, and high-risk groups according to the degree of recurrence risk [16]. Furthermore, patients were divided based on whether they received endocrine therapy. The critical pathway contained a 10-year follow-up plan. The low-risk group underwent standard tests (annual blood sampling, mammography, and breast ultrasonography). In the intermediate-risk group, bone scintigraphy was added in the second and fifth years. Annual bone scintigraphy and abdominal ultrasonography were performed in the second and fifth years in the high-risk group. This retrospective observational study was conducted in accordance with the latest Ethical Guidelines for Medical and Health Research Involving Human Subjects in Japan (May 29, 2017, revised edition) and approved by the institutional Research Ethics Committee in August 2020 (reference No. R02-170). Informed consent was obtained in the form of opt-out on the website.

**Statistical Analysis**

The analysis targets of the CC and FP groups were determined using the propensity score matching method based on the following 7 factors at the time of surgery: oestrogen receptor status, progesterone receptor status, human epidermal growth factor receptor 2 status, St. Gallen category, menopausal status, surgical procedure, and receipt of postoperative chemotherapy. The baseline characteristics and prognosis of patients who developed recurrence were assessed using Fisher’s exact tests. Overall survival (OS) in both groups was analysed using the Kaplan-Meier method and compared using the log-rank test. All statistical analyses were two-sided, and \( p < 0.05 \) was considered to be indicative of statistical significance. All statistical analyses were performed using the JMP software program (version 10.0; SAS Institute Inc., Cary, NC, USA).
Results

Propensity Score Matching and Background Characteristics

Of the 2,850 patients with stage I–III breast cancer who underwent surgery between June 2005 and May 2014, 637 had recurrence after breast surgery (Fig. 1). A total of 383 patients were excluded for the following reasons: 80 had a history of malignant disease at the time of breast surgery, 70 had new onset of other cancers after breast surgery, 82 developed recurrence within 1 year after breast surgery, and 151 developed recurrence more than 7 years after breast surgery (Fig. 1). Most of the patients who continued follow-up more than 7 years postoperatively were followed up by FPs and were therefore excluded from this analysis. Therefore, 254 patients who relapsed within 7 years from the first postoperative period were included in the analysis, 146 patients in the CC group and 108 in the FP group. After propensity score matching, we included 97 patients who relapsed each in the CC group and the FP group. Table 1 shows the baseline characteristics of patients included in the analysis. The patient characteristics were evenly adjusted. The median ages in the CC group and FP group were 54.1 (42–84) years and 55.2 (38–80) years, respectively, with no significant difference. Estrogen receptor-positive breast cancer accounted for 67% of cases in the FP group and 68% of cases in the CC group, whereas human epidermal growth factor receptor 2-positive breast cancer accounted for 16% of cases in the FP group and 15% of cases in the CC group. According to the St Gallen 2007 risk classification, 20% of patients were in the low-risk group, 40% were in the intermediate-risk group, and 40% were in the high-risk group. Chemotherapy was administered to about half of the patients.

Methods of Detecting Recurrence

Table 2 shows the routine physical examination methods that first identified recurrence in the two groups. Recurrences were either diagnosed because of a chief complaint or they were asymptomatic, which we defined as no

| Table 1. The baseline characteristics of patients included in the analysis |
|---------------------------------|-----------------|-----------------|
|                                 | Family physicians | Cancer centre |
| Number                          | 97              | 97              |
| Age, years                      | 54.1 (42–84)    | 55.2 (38–80)   |
| Menopause                       |                 |                 |
| Premenopause                    | 46 (47%)        | 44 (45%)       |
| Postmenopause                   | 51 (53%)        | 53 (55%)       |
| Estrogen receptor               |                 |                 |
| Positive                        | 65 (67%)        | 66 (68%)       |
| Negative                        | 32 (33%)        | 31 (32%)       |
| Progesterone receptor           |                 |                 |
| Positive                        | 52 (54%)        | 49 (51%)       |
| Negative                        | 45 (46%)        | 48 (49%)       |
| Human epidermal growth factor receptor 2 |       |                 |
| Positive                        | 16 (16%)        | 15 (15%)       |
| Negative                        | 81 (84%)        | 82 (85%)       |
| St. Gallen risk                 |                 |                 |
| Low                             | 21 (22%)        | 20 (21%)       |
| Intermediate                    | 41 (42%)        | 37 (38%)       |
| High                            | 35 (36%)        | 40 (41%)       |
| Operation method                |                 |                 |
| Conservation                    | 48 (49%)        | 46 (47%)       |
| Mastectomy                      | 49 (51%)        | 51 (53%)       |
| Axillary management             |                 |                 |
| Sentinel biopsy                 | 42 (43%)        | 35 (36%)       |
| Dissection                      | 55 (57%)        | 62 (64%)       |
| Neoadjuvant chemotherapy        |                 |                 |
| No                              | 84 (87%)        | 77 (79%)       |
| Yes                             | 13 (13%)        | 20 (21%)       |
| Adjuvant chemotherapy           |                 |                 |
| No                              | 46 (47%)        | 47 (48%)       |
| Yes                             | 51 (53%)        | 50 (52%)       |
| Adjuvant endocrine therapy      |                 |                 |
| No                              | 34 (35%)        | 36 (37%)       |
| Yes                             | 63 (65%)        | 61 (63%)       |
symptoms listed in the medical record. The chief complaints triggering the detection of recurrence were masses (chest wall mass, breast mass, or enlarged lymph nodes), bone pain, cough, headache, fracture, respiratory distress, and others. The chief complaints leading to the detection of recurrence in the FP and CC groups were masses in 4 and 2 patients, respectively, bone pain in 8 and 4 patients, respectively, cough in 6 and 7 patients, respectively, headache in 9 and 1 patients, respectively, and fatigue in 6 and 0 patients, respectively (data not shown). In the FP group, there were significantly more cases of recurrence in which patients presented with a chief complain. In contrast, in the CC group, there were significantly more recurrences detected based on bone scan results.

### Type of Recurrence

Table 3 shows the initial recurrence sites in each group. There was no significant difference in the metastatic organs in which recurrence was found in the two groups. Brain metastases were the initial recurrences in 10% of patients in the FP group and 4% of patients in the CC group. Lung metastasis and bone metastasis accounted for about 30% of recurrences in both groups.

### Table 2. The comparison of the follow-up methods that first detected recurrence between the two groups

|                      | FP group N = 97 | CC group N = 97 | p value |
|----------------------|-----------------|-----------------|---------|
| Normal examination   |                 |                 |         |
| Chief complaint¹     | 33 (34%)        | 14 (14%)        | 0.001   |
| Laboratory           | 18 (19%)        | 15 (15%)        | 0.57    |
| Chest X-ray          | 5 (5%)          | 5 (5%)          | 1.00    |
| MMG/breast US        | 31 (32%)        | 40 (41%)        | 0.17    |
| Intensive examination|                 |                 |         |
| Public examination   | 1 (1%)          | 0 (0%)          | 0.31    |
| Abdominal US         | 4 (4%)          | 4 (4%)          | 1.00    |
| Bone scan            | 5 (5%)          | 19 (20%)        | 0.002   |

FP, family physician; CC, cancer centre; MMG, mammography; US, ultrasound. ¹ Mass, bone pain, cough, headache, fatigue, and others.

### Table 3. The comparison of the initial recurrence sites between the two groups

|                      | FP group N = 97 | CC group N = 97 | p value |
|----------------------|-----------------|-----------------|---------|
| Local breast         | 12 (12%)        | 15 (15%)        | 0.53    |
| Local lymph node     | 12 (12%)        | 20 (21%)        | 0.12    |
| Contralateral breast | 9 (9%)          | 5 (5%)          | 0.26    |
| Liver                | 14 (14%)        | 10 (10%)        | 0.38    |
| Lung                 | 27 (28%)        | 21 (22%)        | 0.32    |
| Bone                 | 24 (25%)        | 32 (33%)        | 0.21    |
| Brain                | 10 (10%)        | 4 (4%)          | 0.09    |
| Other                | 12 (12%)        | 6 (6%)          | 0.13    |

FP, family physician; CC, cancer centre.

### Table 4. The comparison of new-onset breast cancer in each group

|                      | FP group | CC group | p value |
|----------------------|----------|----------|---------|
| Ipsilateral breast cancer |         |          |         |
| Number                | 12       | 15       | 0.7     |
| Size (range), cm      | 1.85 (0–2.1) | 2.1 (0–10.2) |         |
| Contralateral breast cancer |      |          |         |
| Number                | 9        | 5        | 0.8     |
| Size (range), cm      | 0.99 (0–3.6) | 1.17 (0–2.3) |         |

FP, family physician; CC, cancer centre.

We also compared the diameters of ipsilateral breast tumours and contralateral breast tumours after breast-conserving surgery between the two groups. The median diameters of ipsilateral breast tumours were 1.85 and 2.1 cm in the FP group and CC group, respectively, with no significant difference (Table 4). The median diameters of contralateral breast tumours were 0.99 and 1.17 cm in the FP group and CC group, respectively, with no significant difference. In both cases, the FP group tended to have smaller tumours than the CC group.
**Fig. 2.**

**a** The comparison of the overall survival (OS) curve after recurrence by the institution where recurrence was detected.

**b** The comparison of the overall survival (OS) curve from the day of surgery by the institution.

**c** The recurrence-free survival curve from breast cancer surgery to recurrence of invasive cancer in the two groups.
although the minimum routine inspection method was ical pathways based on the St. Gallen 2007 risk category, tents of regular inspections were carried out in three crit- the CC group, the FP group had a larger number of recur- scintigraphy that would not have been diagnosed in the CCs identified early asymptomatic recurrences by bone cancer surgery to recurrence of invasive cancer in the two groups is shown in Figure 2c. The med- recurrence-free survival time from breast cancer surgery to recurrence of invasive in the two groups is shown in Figure 2c. The med- recurrence-free survivals were 1,676 days in the FP group and 994 days in the CC group. The CC group had a significantly shorter recurrence-free survival than the FP group.

Discussion

To the best of our knowledge, this is the first study to investigate the impact of routine follow-up by FPs and CCs on OS. We demonstrated that regular examinations in a CC did not show any improvement in survival compared to examinations by an FP.

There was no significant difference in OS between the FP group and the CC group according to the recurrence risk at the time of surgery. Past prospective randomised trials comparing FPs and CCs evaluated patient satisfaction and disease-free survival. However, there were few recurrence cases, and the OS has not been analysed. Further, the follow-up period after recurrence of these studies was short. In this study, the patient baseline characteristics were aligned using propensity score matching for recurrent patients in the CC group and the FP group. We compared 97 patients who developed recurrence in both groups and reported the OS of patients with recurrence within 2–7 years after surgery. The CC group had a shorter recurrence-free survival than the FP group. Similarly, Grunfeld et al. [17] showed that the transfer of routine follow-up care to FPs did not result in an increase in the time to diagnosis of recurrence. There are two possible reasons why the recurrence-free period was shorter in the CC group. First, the CC group had early detection of recurrence in asymptomatic patients. Second, the FP group had different timings of collaboration. It is possible that CCs identified early asymptomatic recurrences by bone scintigraphy that would not have been diagnosed in the FP group until they became symptomatic. Compared to the CC group, the FP group had a larger number of recurrences detected because of a chief complaint. The contents of regular inspections were carried out in three critical pathways based on the St. Gallen 2007 risk category, although the minimum routine inspection method was the same for both groups. However, it is likely that the CC group received more testing than what was called for in the critical pathway because CCs can more easily use the inspection equipment. However, this was not analysed in our study. Additionally, this study did not compare the introduction of patients at the collaborative facility and the start of follow-up at the CC by randomising them at the same time. In the FP group, patients were referred for between 1 and 5 years. Therefore, we might have introduced many cases to the FP with no signs of recurrence in the second or third year. Further, there was no pathway to add inspection methods depending on the risk. However, the recurrence rate depended on the risk. In 2006, before the introduction of this RMC, the regular inspection method for high-risk group patients was discussed with the practitioner. If the FPs were specialists, they might be able to detect recurrence only by interviewing. This clinical pathway was prepared in consultation with surgeons in addition to specialists. However, it is necessary to review the clinical pathway and update it as appropriate.

The RMC had several problems. One problem was the re-introduction of patients from the collaborative FPs to the CC. Most re-introduction cases to our CC had continued receiving adjuvant hormonal therapy while receiving follow-up from FPs. In 6% of cases, the cause of re-introduction was related to symptoms of postoperative adjuvant therapy, including lymphoedema, lower leg oedema, and endocrine therapy-related adverse events. If an FP could not address these symptoms, the patient was re-introduced to our hospital. We had multiple patients who had similar chief complaints, and the FP group had more complaints of these symptoms. Therefore, patients’ understanding of their disease is an important issue for their quality of life [18].

There were several limitations to our study. First, this was not a prospective study. Second, patients were assigned to the FP group and the CC group at different times. Third, no questionnaire has been created, and therefore the interview technique depends on experience and can vary. Finally, this study did not examine non-inferiority. Therefore, it did not show the equivalence of survival rates between the CC group and the FP group.

In conclusion, the RMC brings benefits to patients, clinics, and hospitals [19, 20]. The benefit to the patient is that they receive quality-guaranteed, planned medical care near their home [21]. The advantage to the clinics is that they can provide community-based medical care while sharing medical plans with hospitals [22, 23]. The advantage to the hospitals is that they can concentrate on specialised treatment by streamlining outpatient clinics [24]. However, there are few reports comparing the OS of recurrent patients followed up at clinics and hospitals. This study evaluated the OS of these patients. There was
no significant difference in OS between the FP group and the CC group according to the recurrence risk at the time of surgery. Early diagnosis of recurrence did not alter prognosis. Our study showed that patients with operative breast cancer could safely be offered follow-up by FPs.

Acknowledgements

We would like to thank all patients and family physicians below: Dr. Haruhiko Terada, Dr. Nobumitsu Shiina, Dr. Hideaki Arima, Dr. Hiromitsu Matsuda, Dr. Teruo Kaiga, Dr. Shigemi Kouda, Dr. Shinji Yamamoto, Dr. Yayoi Jinno, Dr. Tomotsune Shishikura, Dr. Yuichiro Oozeki, Dr. Ken Suda, Dr. Narishige Furuya, Dr. Kouta Sunouchi, Dr. Yoshiki Sugaya, Dr. Kouji Suzuki, Dr. Yoshio Masuda, Dr. Takashi Inoue, Dr. Katsumi Sugimoto, Dr. Katsura Okazaki, Dr. Shoujiro Miyazaki, Dr. Manami Sasahara, Dr. Masahiko Nishizawa, Dr. Chikanobu Suzuki, Dr. Masaaki Sakamoto, Dr. Osamu Suzuki, and Dr. Atsushi Yoshii.

Statement of Ethics

This retrospective observational study was approved by the institutional Research Ethics Committee of the Chiba Cancer Center, Chiba, Japan, in August 2020 (reference No. R02-170). Informed consent was obtained in the form of opt-out on the web site. The informed consent procedure was also approved by the Ethics Committee.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Funding Sources

This research did not receive any grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author Contributions

Conception and design: Rikiya Nakamura. Acquisition of data: Shouko Hayama, Toshiko Miyaki, Keiko Oshida, Masaki Oshida, Yasushi Itou, Tetsumori Kow, and Naohito Yamamoto. Analysis and interpretation of data: Shouko Hayama. Drafting article: Rikiya Nakamura. Revision of the manuscript: Rikiya Nakamura. Final approval of the version to be submitted: Rikiya Nakamura.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

1 Smith T, Davidson N, Schapira D; American Society of Clinical Oncology. 1998 update of recommended breast cancer surveillance guidelines. J Clin Oncol. 1999 Mar;17(3):1080–2.
2 Grünfeld E, Dhesy-Thind S, Levine M; Steering Committee on Clinical Practice Guidelines for the Care and Treatment of Breast Cancer. Clinical practice guidelines for the care and treatment of breast cancer: follow up after treatment for breast cancer. CMAJ. 2005 May;172(10):1319–20.
3 Grünfeld E, Noorani H, McGahan L, Paszat L, Coyle D, van Walraven C, et al. Surveillance mammography after treatment of primary breast cancer: a systematic review. Breast. 2002 Jan;11(1):228–35.
4 Lafranconi A, Pyllkänen L, Deandrea S, Bramesfeld A, Lerda D, Neamțiu L, et al. Intensive follow-up for women with breast cancer: review of clinical, economic and patient’s preference domains through evidence to decision framework. Health Qual Life Outcomes. 2017 Oct;15(1):206.
5 Ditsch N, Untch M, Thill M, Müller V, Janni W, Albert US, et al. AGO recommendations for the diagnosis and treatment of patients with early breast cancer: update 2019. Breast Care (Basel). 2019 Aug;14(4):224–45.
6 Rojas MP, Telaro E, Russo A, Moschetti I, Coe L, Fossati R, et al. Follow-up strategies for women treated for early breast cancer. Cochrane Database Syst Rev. 2005 Jan 25(1):CD001768.
7 Hoeg BL, Bidstrup PE, Karlsen RV, Friberg AS, Albieri V, Dalton SO, et al. Follow-up strategies following completion of primary cancer treatment in adult cancer survivors. Cochrane Database Syst Rev. 2019 Nov;2019(11):CD012425.
8 Gradishar WJ, Anderson BO, Balassanian R, Blair SL, Burstein HJ, Cyr A, et al. NCCN guidelines insights: breast cancer, version 1.2017. J Natl Compr Canc Netw. 2017 Apr;15(4):433–51.
9 Cardoso F, Kyriakides S, Ohno S, Penault-Llorca F, Poortmans P, Rubio JT, et al. Early breast cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2019 Aug;30(8):1674–220.
10 Lamping C, Wennberg A, Schill JE, Brodin O, Glímelius B, Sjödén PO. Anxiety and cancer-related worry of cancer patients at routine follow-up visits. Acta Oncol. 1994;33(2):119–25.
11 Guilford T, Opomo M, Wilson E, Hanham J, Epstein R. Popularity of less frequent follow-up for breast cancer in randomised study: initial findings from the hotline study. BMJ. 1997 Jan;314(7075):174–7.
12 de Bock GH, Bonnema J, Zwaan RE, van de Velde CJ, Kievet J, Stiggelbout AM. Patient’s needs and preferences in routine follow-up after treatment for breast cancer. Br J Cancer. 2004 Mar;90(6):1144–50.
13 Richter-Ehrenstein C, Martinez-Pader J. Impact of breast cancer diagnosis and treatment on work-related life and financial factors. Breast Care (Basel). 2021 Jan;16(1):72–6.
14 Markopoulou C. Towards harmonisation of breast care in Europe. Breast Care (Basel). 2019 Dec;14(6):341–3.
15 Kyriazoglou A, Zagouri F, Fotiou D, Dimitrakakis C, Marinopoulos S, Zakopoulos R, et al. Discrepancies of current recommendations in breast cancer follow-up: a systematic review. Breast Cancer. 2019 Sep;26(5):681–6.
16 Goldhirsh A, Wood WC, Gelber RD, Coates AS, Thürlimann B, Senn HJ. Progress and promise: highlights of the international expert consensus on the primary therapy of early breast cancer 2007. Ann Oncol. 2007 Jul;18(7):1133–44.
17 Grünfeld E, Levine MN, Julian JA, Coyle D, Szechtman B, Mirsky D, et al. Randomized trial of long-term follow-up for early-stage breast cancer: a comparison of family physician versus specialist care. J Clin Oncol. 2006 Feb;24(6):848–55.
18 Jackisch C, Kreienberg R, Blettner M, Harbeck N, Lüke HJ, Haider R, et al. Assessment of quality of life in postmenopausal women with early breast cancer participating in the PACT trial: the impact of additional patient information material packages and patient compliance. Breast Care (Basel). 2020 Jun;15(3):236–45.

19 O’Brien M, Grunfeld E, Sussman J, Porter G, Mobilio HM. Views of family physicians about survivorship care plans to provide breast cancer follow-up care: exploration of results from a randomized controlled trial. Curr Oncol. 2015 Aug;22(4):252–9.

20 Blanch-Hartigan D, Forsythe LP, Alfano CM, Smith T, Nekhlyudov L, Ganz PA, et al. Provision and discussion of survivorship care plans among cancer survivors: results of a nationally representative survey of oncologists and primary care physicians. J Clin Oncol. 2014 May;32(15):1578–85.

21 Luctkar-Flude M, Aiken A, McColl MA, Tranmer J, Langley H. Are primary care providers implementing evidence-based care for breast cancer survivors? Can Fam Physician. 2015 Nov;61(11):978–84.

22 Worster A, Bass M, Wood M. A willingness to follow breast cancer: a survey of family physicians. Can Fam Physician. 1996 Feb;42:263–8.

23 Grunfeld E, Mant D, Vessey MP, Fitzpatrick R. Specialist and general practice views on routine follow-up of breast cancer patients in general practice. Fam Pract. 1995 Mar;12(1):60–5.

24 Del Giudice ME, Grunfeld E, Harvey BJ, Piliotis E, Verma S. Primary care physicians’ views of routine follow-up care of cancer survivors. J Clin Oncol. 2009 Jul;27(20):3338–45.