

2019

## Student exposure to cancer patients: an analysis of clinical logbooks and focus groups in clinical year medical students

Darren L. Starmer

*The University of Notre Dame Australia*, [darren.starmer@nd.edu.au](mailto:darren.starmer@nd.edu.au)

Caris L. House

Kristyn M. Langworthy

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This article was originally published as:

Starmer, D. L., House, C. L., & Langworthy, K. M. (2019). Student exposure to cancer patients: an analysis of clinical logbooks and focus groups in clinical year medical students. *Journal of Cancer Education, Early View (Online First)*.

Original article available here:

<https://link.springer.com/article/10.1007/s13187-019-01526-1>

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This is a post-peer-review, pre-copyedit version of an article published in the *Journal of Cancer Education*:

Starmer, D.L., House, C.L., & Langworthy K.M. (2019). Student exposure to cancer patients: an analysis of clinical logbooks and focus groups in clinical year medical students. *Journal of Cancer Education, Online First*. doi: 10.1007/s13187-019-01526-1

The final authenticated version is available online  
at: <https://link.springer.com/article/10.1007/s13187-019-01526-1>

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Running Title: Medical Student Exposure to Cancer Patients

Authors:

Darren L. Starmer BN. MEdStds (Hons)<sup>1</sup>  
Caris L. House Doctor of Medicine Student, BSc (Hons)<sup>1</sup>  
Kristyn M. Langworthy MBBS (Hons)<sup>2</sup>

Institutions:

1. The University of Notre Dame Australia  
School of Medicine  
PO Box 1225  
Fremantle WA 6959  
Australia
2. Fiona Stanley Hospital  
11 Robin Warren Dr  
Murdoch WA 6150  
Australia

Corresponding author:

Darren Starmer  
Head of Assessment  
School of Medicine  
The University of Notre Dame Australia  
PO Box 1225  
Fremantle WA 6959  
Australia  
Phone: +61 8 9433 0184  
Mobile: +61 417 845 835  
Email: darren.starmer@nd.edu.au

Funding: Nil

Conflicts of interest: Nil

## **Student exposure to cancer patients: an analysis of clinical logbooks and focus groups in clinical year medical students**

### **ABSTRACT**

Despite cancer being the leading cause of mortality, cancer education and patient exposure is lacking in many medical schools.

The aim of this study was to evaluate the nature of cancer patient exposure, relative to the clinical setting for medical students on placement and to explore their experiences.

Participants were asked to maintain a logbook of cancer patient encounters and were invited to attend a structured focus group upon completion of the academic year.

Eleven students submitted logbooks (rr = 6.15%) and 8 participated in the focus groups (4.47%). A total of 247 cancer patient encounters were recorded. Third year students primarily saw patients in surgery (18.62%) and general practice (8.50%), whilst final year students saw cancer patients most frequently in palliative care (35.22%) and ENT surgery (13.77%).

Students highlighted that the quality of their interactions with cancer patients varied significantly between clinical settings. Outpatient clinics and surgical in-patients had the lowest level of interaction, with students having a predominantly observatory role. Repeated themes of uncertainty and awkwardness regarding history, examination and discussing death and dying were outcomes of thematic analysis.

Exposure to cancer patients remains highly variable and opportunistic. Students voiced concerns for preparedness to practice and many find it worrisome that they will likely examine a primary cancer when they have graduated, without having done so during their training. Our study suggests that a more structured approach to teaching and clinical exposure to cancer patients is required.

## BACKGROUND

Cancer is the leading global cause of mortality<sup>1,2</sup>. Despite this, cancer education and oncology patient exposure is often lacking in medical schools, resulting in interns who are underprepared for interactions with cancer patients<sup>3-8</sup>. By the age of 85, one in two males and one in three females in Australia will be diagnosed with cancer<sup>2</sup>. This, combined with increased survivorship<sup>3</sup>, will mean that medical students and junior doctors will frequently encounter cancer patients, irrespective of the clinical setting they are in. Despite some students having spent time in cancer clinics it has been reported that the actual exposure to patients, especially performing examinations, has decreased<sup>3,6,7</sup>. In Western Australia interns do not have dedicated rotations in cancer service units, however they are often required to take histories and examine patients with cancer. For example, all interns must complete an emergency medicine term in which cancer patients may present with complications of their treatment. Regardless of the clinical setting, cancer knowledge and experience with cancer patients, is an essential component of medical education.

The shift towards ambulatory care<sup>3</sup> means that students may not have meaningful exposure to cancer patients in medical school clinical rotations. Without active interactions with oncology patients there will likely be cohorts of medical graduates who are underprepared for future encounters with cancer patients. Studies suggest that students make decisions regarding areas of intended specialisation and develop perceptions about particular fields of medicine early in their careers<sup>1,9</sup>. If Australian medical students are continually underexposed to cancer patients then the oncologist shortage<sup>10</sup> will likely not resolve. Furthermore, the stigma around oncology as a depressing field may remain.

Previous and current students have highlighted concerns regarding the inadequate level of cancer education within medical curricula<sup>1,11,12</sup>. An alarmingly low number of medical students reported examining primary cancers in patients prior to graduation<sup>3</sup>. This lack of preparation is concerning for a disease with such a large global impact. Despite the development of the Ideal Oncology Curriculum for Medical Students (IOC),<sup>13</sup> which outlines key competencies for medical graduates, there is no national consensus on how to incorporate this into medical curricula<sup>1</sup>. Anecdotal feedback to the Cancer Council Australia's Oncology Education Committee indicated that medical schools generally used the IOC as a checklist. At the SOMF, the IOC was used to guide the development of the clinical placement in palliative care. There are established concerns among students about the fulfilment of these recommended competencies<sup>1,11,12</sup>. The limited uptake of the IOC framework nationally<sup>1</sup>, paired with the multidisciplinary nature of cancer means that pre-clinical and clinical teaching

is inconsistent, resulting in learning that is opportunistic and characterized by duplication, omission and contradiction.

Previous studies have examined the number of interns who reported examining a patient with a common cancer whilst at medical school<sup>3-8,14</sup>. However, none have explored the nature of student encounters with cancer patients relative to the clinical setting. Clinical plans for students can potentially incorporate this information to ensure that their rotations are designed to deliver the most appropriate experience. The inclusion of focus groups in this study enables a deeper analysis of medical student perceptions of preparedness, barriers and facilitators to quality interactions with cancer patients.

## **STUDY AIM**

The aim of this study was twofold:

1. to evaluate the frequency of cancer patient exposure, focusing on the nature of interactions relative to the clinical setting for medical students on clinical placement.
2. to explore the experiences of medical students with regards to barriers, enablers and preparedness to practice.

## **METHOD**

### **Sample**

Students in the clinical years from the University of Notre Dame Australia's School of Medicine, Fremantle (SOMF) were invited to participate through lecture invitation at orientation week.

### **Procedure**

All third and fourth year medical students (84 and 95 respectively) were invited to participate in the study. Participants were asked to maintain a logbook of cancer patient encounters during clinical placements. Excel logbooks were developed to capture patient demographics, nature of primary diagnosis, clinical rotation, setting in which the patient was encountered and the nature of the interaction. The nature of the interaction asked students to detail if they had conversed with the patient, taken a history or performed an examination. Students were also asked whether they had observed shared decision-making and if the patient was terminal. Completed logbooks were analysed using SPSS for Windows (version 24).

Students were invited to attend a structured focus group upon completion of the academic year. Two sessions were held, one with the final year students and the other with penultimate

students. Focus group questions were developed to target themes of enablers, barriers, perceptions regarding practice in oncology and nature of exposure to cancer patients. Questions remained consistent for both focus groups and the facilitator encouraged discussion around these prompt questions. Member checking occurred throughout the focus group where clarification was required. Focus group sessions were transcribed verbatim and three research team members undertook manual thematic analysis independently until thematic saturation was achieved.

### **Ethics**

The study received approval by the University of Notre Dame Human Research Ethics Committee (Study number 016184F).

### **RESULTS**

A total of 21 students agreed to participate in the study (rr = 11.73%). Eleven students submitted logbooks (rr = 6.15%) and 8 participated in the focus groups (4.47%). Seven withdrew and three were lost to follow up.

#### **Exposure to cancer patients**

On average, students saw 22 cancer patients (range 2 – 65). Fifty-one percent were women and the mean age range was 60-69 years (26.3%). Overall, 98% of all cancer patients were seen in the metropolitan area and 58% were seen in private facilities.

A total of 247 cancer patients were recorded in the logbooks. Third year students primarily saw patients during general surgery (18.62%) and general practice (8.50%) placements, whilst final year students saw cancer patients most frequently during palliative care (35.22%) and ENT surgery (13.77%) placements (Table 1).

#### **INSERT TABLE ONE**

Focus group discussions confirmed that these placements were where the majority of cancer patient exposure took place. Participants mentioned that they didn't feel a noticeable difference in exposure opportunities between private and public settings. Students discussed that once they overcame the barriers to accessing cancer patients, either through self-seeking or supervisors who were encouraging, the experience with patients was uplifting and a great learning process.

The majority identified that the opportunity for them to take a history or examine a patient was highly dependent on their clinical supervisors' demeanour, their interest areas and how comfortable the student felt to seek out these opportunities. Some students reported that there was limited opportunity, particularly in clinics, to examine patients, with some reporting that their supervisors would state things like; "next time", "just watch", "you can ask them", which according to participants, rarely eventuated in these students performing any examinations. Two of the focus group participants had not performed physical examination of common primary cancers including breast or prostate, or other sensitive exams (e.g. vaginal) during medical school. One student had not had the opportunity to observe a breast examination or a Papanicolaou test. Furthermore, many students reported examining cancers intraoperatively, with the surgeon pointing out the tumour to them, rather than other clinical settings where a complete examination is more appropriate.

### **Clinical setting**

The majority of cancer patients were seen in inpatient settings, with palliative care and surgery accounting for 35.22% and 24.70% respectively. Ten percent were seen in general practice (Table 2).

### INSERT TABLE TWO

Students highlighted that the time and depth of their interactions with cancer patients varied greatly between clinical settings. For instance, outpatient clinics and surgical in-patients, which accounted for one-third of cancer patients, were reported in the focus groups to have the lowest level of involvement, with students having a predominantly observatory role. Surgery was reportedly where the most superficial interactions occurred, with one student reporting these as being "hi, bye" in nature, with minimal patient interaction. Outpatient clinics were reported to be too time pressured to lend themselves to any experiential learning. In contrast, non-surgical inpatient settings were described as less time pressured, providing increased opportunity to interact with cancer patients. However, students reported that irrespective of patient setting they often "needed to seek out cancer patient interactions independently".

### **Nature of interaction with cancer patients**

When examining the nature of the patient encounters, two of the 11 students had not reported taking a history, performing an examination, or observing shared decision making. Two students had not encountered terminal patients.

Overall, 53.8% of the patients logged (approximately half of whom were terminal) conversed with students, 50.2% gave a history and 44.1% were examined. Fifty-nine percent of all patients seen were terminal (Table 3). No significant differences were observed with regards to patient gender or whether the patient was terminal.

#### INSERT TABLE THREE

Students reported in the focus groups that their opportunities to physically examine patients with cancer were extremely limited. This was reportedly not only due to access issues but the personal dilemma around asking a vulnerable patient to undergo a second (sometimes sensitive) examination that would not change management in any capacity. One study participant said, “we are just medical students doing things for our own sake”.

Students reported that most of their discussions with cancer patients were superficial and not about the patients’ cancer or prognosis. Students felt that this was because the patient wished for a “break from the medical talk” and also because medical students were often unaware of how much the patient knew about their cancer. Many students in the focus group discussed the uncertainty of “not knowing if they (patient) actually know they have cancer and the likely outcomes”. Students discussed feeling more comfortable with the general ‘life’ discussions as their perceived limited cancer knowledge made medical interactions “uncertain” and “awkward”. Students highlighted that when patients asked them medical questions regarding their diagnosis or prognosis they felt “out of our depth” as they did not feel that their medical education to date had given them a solid foundation from which to respond. One student stating; “we really don’t get taught the basics in terms of oncology work up and management”.

#### **Preparedness for and perceptions of practice**

Focus groups revealed that students felt there was a lack of basic oncology teaching through their pre-clinical and clinical years. Furthermore, participants felt that exposure to cancer patients was highly variable. Repeated themes of uncertainty and awkwardness regarding how best to approach a history, examination and death and dying were outcomes of thematic analysis. This was attributed by students to a lack of supervised exposure and cancer specific clinical placements. A number of students voiced concerns about entering their internship having no, or extremely limited, experience with examining common primary cancers or discussing death and dying with a patient.

Collectively, students voiced that exposure to cancer patients did not put them off the idea of practicing oncology in the future, but rather encouraged their interest in the area. One student stated that “through seeing oncologists practice, I now have a much clearer understanding of what their day-to-day work involves”. Students felt that having meaningful patient interactions and observing shared decision making during their placement lead to a shift in their preconceived notions of oncology, with one student stating its “not all doom-and-gloom”. Another stated that their interactions with cancer patients “were really actually uplifting... I didn’t find it depressing at all”. Students also reported that they learnt significant amounts from the patients in terms of diagnostic process and treatment options, which they mentioned was absent from the curriculum. One student said “I think I learnt my treatment options through the cancer patients”.

## **DISCUSSION**

The data highlighted the variability of student exposure to cancer patients whilst on clinical placement. It is hypothesised that even lower numbers of cancer patient interactions would be seen in the wider cohort, as this study potentially recruited students whom have a greater interest in oncology.

The reliance on a supervisor having a special interest in cancer or having to independently seek out cancer patients results in considerable variability in student experiences. The opportunistic, unstructured and variable experiences of our participants highlights the shortcomings of cancer education in many medical schools, resulting in medical graduates who feel ill prepared to care for cancer patients. Whilst one could argue that students will have different experiences during a dedicated clinical placement in oncology, all students would nevertheless be exposed to cancer patients in a structured and coordinated manner, with the focus on the fundamental principles underpinning all treatment modalities. Currently, all students at SOMF undertake a two-week clinical attachment in palliative medicine. There are no structured attachments in medical or radiation oncology, or haematology and any exposure to these areas is purely by chance.

Approximately one third of cancer patients were seen in surgery (both inpatients and outpatients). However, focus groups highlighted that these settings offered limited opportunities to take a history or examine a patient. This is supported by prior research<sup>3</sup>, whereby clinics were identified to be too fast paced to lend themselves to an experiential learning environment for medical students. This is concerning not only for the students in

terms of preparedness for practice but also the broader society that relies on non-specialist medical professionals to assist in the management of cancer patients.

Students themselves have identified gaps in medical curricula in relation to cancer education, stating that their education is failing to deliver basic cancer knowledge and experience<sup>1, 11, 12</sup>. It is disturbing that some medical graduates' feel that their medical school has underprepared them for interactions with the most prevalent patient diagnostic group. Further, despite its prevalence, cancer forms a minute component of medical student assessment<sup>1</sup>, highlighting both clinical and assessment gaps in cancer education.

The focus groups highlighted that when structured and experiential learning with cancer patients was provided, they gained a better understanding of the role of the oncologist. In some cases, the students' interest in oncology as a field of practice increased. Further, all participants of the focus groups reflected that their negative preconceptions regarding oncology were challenged following positive and meaningful interactions with patients and their significant others. Literature has highlighted that areas of intended specialty are often selected early in a doctor's medical education<sup>1</sup>. Therefore, any opportunity to positively influence perception of an often feared area of medicine has the potential to benefit society. With cancer prevalence and the projected shortage of oncologists<sup>15</sup>, early, coordinated cancer patient exposure is an essential component of medical education.

In a previous publication the number and scope of cancer patients seen during clinical placement was explored, and reported low exposure to common cancers and an overall low average number of cancer patients seen by students (9)<sup>14</sup>. Compared with the data reported in this study, the exposure to common cancers remains low but the average number of cancer patients seen by students is much higher. The difference in these observations is most likely due to the low number of participants and student data spanning an entire academic year. However, these differences also highlight the variability of opportunistic exposure to cancer patients during clinical placement.

It would be valuable for future research to continue to collect data around the nature of clinical interactions, as it seems that frequency and quality of interactions are not necessarily related. The qualitative element to this study provided rich data regarding the preparedness to practice and this would also benefit from further exploration.

There are several limitations to this study, with the main ones being the variability of the data logged by each student and the small number of participants. The latter is possibly a cause of

bias, as it is likely that those with an interest in cancer and/or who saw cancer patients participated in the study. The log book data was not intended to deliver quantitative significance but rather to explore the nature of medical student exposure to cancer patients whilst in the clinical setting. The data collected in the logbooks was congruent with the felt experiences identified in the focus groups.

This study focused on extracting experiences from a narrow field in the medical curriculum and hence the experiences of a small number of students enabled rich data collection and the subsequent identification of themes of practice in terms of barriers, facilitators and nature of interaction with cancer patients. The themes interpreted in the first focus group were further crystallised in the second group. Member checking occurred throughout the course of the focus groups and whilst we recognise the limitations of this validation method, at no point was the interpretation of the dialogue deemed to need alteration from the focus group member. All Australian medical schools are accredited by the Australian Medical Council (AMC) and aim to graduate doctors who meet the AMC's graduate outcomes (16). Therefore, despite the numbers being small, the narrow field data yielded is largely generalisable across these schools.

## **CONCLUSION**

Medical student exposure to cancer patients remains highly variable. Whilst the majority of students in our study were able to (on average) take a history and examine approximately half of the cancer patients logged, some did not. Students are reporting concerns for preparedness to practice and many find it worrisome that they will likely examine a primary cancer when they have graduated medical school without having done so during their training. If cancer is our leading cause of mortality, and medical schools are meant to generate generalists who meet the needs of the society which they intend to serve, then surely a more structured approach to teaching and clinical exposure to cancer is warranted. In order to achieve this, pre-clinical cancer content in the form of basic oncology principles needs to be incorporated into curricula. In the clinical years, more structured clinical exposure to patients in medical, radiation and haematological oncology and palliative care units should be made available to all students.

Table 1: Cancer patients logged by clinical placement

Clinical placement	Cancer patients (n)	Cancer patients (%)	Duration (weeks)
<b><i>Third year (MEDI6300)</i></b>			
General medicine	19	7.69%	8
General practice	21	8.50%	4
Obstetrics & gynaecology	2	0.81%	8
Ophthalmology*	5	2.02%	1
Paediatrics	1	0.40%	4
General surgery	46	18.62%	8
<b><i>Fourth year (MEDI6400)</i></b>			
Anaesthetics	0	0.00%	2
Emergency Medicine	6	2.43%	4
ENT surgery	34	13.77%	2
General medicine	8	3.24%	4
Geriatric medicine	2	0.81%	2
Intensive care	5	2.02%	2
Musculoskeletal	0	0.00%	2
Palliative medicine	87	35.22%	2
Psychiatry	0	0.00%	4
Rural general practice	5	2.02%	4
General surgery	6	2.43%	4
<b>Total</b>	<b>247</b>		

\* Ophthalmology is undertaken within the general surgery placement

Table 2: Cancer patients logged by clinical setting.

Setting	Frequency	Percent
Emergency Department	6	2.43%
General practice	26	10.53%
Inpatient - Medical oncology	10	4.05%
Inpatient – Other	28	11.34%
Inpatient - Palliative care	87	35.22%
Inpatient – Surgery	61	24.70%
Outpatient – Other	3	1.21%
Outpatient – Palliative care	1	0.40%
Outpatient – Surgery	25	10.12%

Table 3: Individual student interactions with cancer patients.

Student (total number of patients logged)	Total number of patients seen by each student				
	Talk with patient	Took a history	Examined patient	Observed SDM*	Patient was terminally ill
1 (14)	13	5	9	5	8
2 (24)	11	7	12	1	6
3 (19)	14	10	12	5	0
4 (17)	9	10	4	15	10
5 (6)	5	5	4	1	3
6 (2)	--	--	--	--	--
7 (49)	24	25	17	34	40
8 (26)	19	20	15	5	24
9 (65)	32	38	31	35	55
10 (13)	--	--	--	--	--
11 (12)	6	4	5	2	0
Percentage (students)	81.82%	81.82%	81.82%	81.82%	63.64%
Total (patients)	133	124	109	103	146
Percentage (patients)	53.85%	50.20%	44.13%	41.70%	59.11%

\* Shared decision-making

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