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Rural longitudinal integrated clerkships: changing interests and demographics of medical students

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Introduction: The University of Calgary Longitudinal Integrated Clerkship (UCLIC) is an integrated curriculum of at least 32 weeks' duration based in rural communities. Rural LICs have been proposed as a method to respond to the needs of underserved rural communities; therefore, assessing evolving learner interest and demographics over time is of importance to rural communities.
Methods: Three surveys were administered to first-year medical students at the University of Calgary from the classes of 2009, 2010 and 2015. The surveys assessed demographic information as well as interest in and attitudes toward pursuing a rural-based LIC.
Results: Overall, 42% of students (76% of decided students) reported that they would consider the rural UCLIC. Between 2009 and 2010, the proportion of students who would not consider the UCLIC decreased from 25% to 8%, and thereafter was maintained at that level. Over the same period, interest among students considering Royal College of Physicians and Surgeons of Canada (RCPSC) specialties significantl increased. Although student attitudes about the value of the LIC were consistently positive, students remained concerned about social considerations.
Conclusion: There has been an increase in student willingness to consider a rural LIC, most significantly among students interested in RCPSC specialties. Career plans and demographics of students continue to influence their interest in and attitudes toward LICs

Introduction : Le stage intégré longitudinal (SIL) de l'Université de Calgary (ou UCLIC pour *University of Calgary Longitudinal Integrated Clerkship*) est un programme intégré d'une durée minimale de 32 semaines en communauté rurale. Les SIL ruraux ont été proposés comme moyen de répondre aux besoins des communautés rurales moins bien desservies; il est donc important pour les communautés rurales de suivre l'évolution des intérêts et des caractéristiques démographiques des stagiaires au fil du temps
Méthodes : Trois sondages ont été administrés à des étudiants de première année de médecine à l'Université de Calgary des promotions de 2009, 2010 et 2015. Les sondages portaient sur leurs données démographiques de même que sur leur intérêt et leurs attitudes à l'endroit d'un SIL en milieu rural.
Résultats : Dans l'ensemble, 42 % des étudiants (76 % des étudiants décidés) ont déclaré qu'ils envisageraient un SIL en milieu rural. Entre 2009 et 2010, la proportion d'étudiants qui n'envisageaient pas un tel stage a diminué de 25 %, à 8 %, et par la suite s'est maintenue à ce niveau. Au cours de la même période, l'intérêt à l'égard de ce stage chez les étudiants qui envisageaient une spécialisation du Collège royal des médecins et chirurgiens du Canada (CRMCC) a significativement augmenté. Même si leurs attitudes à propos de la valeur d'un SIL sont demeurées favorables, les étudiants ont dit se soucier des enjeux sociaux.
Conclusion : On a constaté que les étudiants envisagent plus volontiers un SIL en milieu rural s'ils souhaitent faire une spécialisation du CRMCC. Les plans de carrière et les caractéristiques démographiques continuent d'influer sur leurs intérêts et leurs attitudes à l'endroit des SIL.

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INTRODUCTION

Currently there are 2 dominant approaches to undergraduate medical school clerkship: the rotation-based clerkship (RBC) and the longitudinal integrated clerkship (LIC). The RBC remains the most commonly used. Medical students participate in short-term rotations of various lengths while they learn under the supervision of hospital-based, discipline-specific clinical preceptors.[1,2] The RBC offers a valuable variety of training opportunities, but it has been criticized for its lack of exposure to continuity of patient care.[3] In contrast, continuity is a fundamental principle of the LIC. Although designs vary by institution,[4] the LIC model supports the relationship of undergraduate medical students with the same patient population, preceptors and/or community over a period of at least 13 weeks and as long as 15 months.[5] Substantial relationships built over time are encouraged, and preceptors are provided with more opportunities to engage students for specific learning experiences, rather than relying on opportunistic encounters that typically occur during the short number of weeks comprising discrete rotations.[3,6]

The University of Calgary Longitudinal Integrated Clerkship (UCLIC) was designed to encourage experiences with continuity of patient care, as well as to increase student exposure to rural medicine and generalist principles. The UCLIC was established in 2008 and is the only LIC in the world to be delivered in the final year of study. Because of the intensive 3-year design, UCLIC students graduate immediately to residency in contradistinction to all other programs that return the learner to a tertiary-based fourth year. The target goal of the program is to provide a rural UCLIC placement for 20% of, or 30 students from, the medical class. The duration of the clerkship (52 wk) is the same as that of the University of Calgary RBC, but the integrated curriculum is delivered in rural communities where the students live for most of the time (32 wk). The number of elective weeks is the same as that of the RBC; however, in contrast to the RBC, elective booking is a collaborative process between students and preceptors, and is more flexible in timing than in the RBC. Shortened 4-week tertiary care rotations in pediatrics, general surgery and internal medicine generally occur at the end of the rural placement. Weekly schedules are flexible but are based in primary care with an explicit interprofessional experience (Table 1). Experienced teaching communities that fit published criteria[7] have been recruited, and the

Table 1: Typical weekly structure of the University of Calgary Longitudinal Integrated Clerkship

Monday	Tuesday	Wednesday	Thursday	Friday
Family medicine	Operating room	Family medicine	Academics	Labour and delivery
Interprofessional experience	Family medicine	Emergency department	Academics	Family medicine

Table 2: Characteristics of rural communities of the University of Calgary Longitudinal Integrated Clerkship

Site	Distance, km*	Population	Started	No. of students
A	116	2 610	2008	2
B	216	3 685	2008	2
C	1 791	19 234	2009	2
D	163	13 676	2012	2
E	137	8 029	2008	2
F	64	12 920	2008	2
G	105	12 317	2010	2
H	232	5 565	2008	1
I	214	6 933	2010	2
J	264	8 104	2009	2

*From Calgary.

number of communities committed to the UCLIC has grown from the initial 5 to the current 10 sites. Characteristics of the individual communities are noted in Table 2. Most teaching sites do not have a specialist practice. The commitment of the rural communities to this program is evidenced by the lack of attrition of teaching sites and the continued commitment to the program during severe community disaster (e.g., the High River flood in 2013)

In the UCLIC, student assessment is based on the same tools used in the RBC, and structured academics are delivered synchronously via information technology. A substantial body of evidence has shown that the LIC model is pedagogically sound and academically equivalent to the RBC.[8–13] Differences suggest improved outcomes associated with longitudinal placements where patient-centred continuity of care can be more of a priority.

Enrolment into an LIC model is either mandated, as in the Northern Ontario School of Medicine, or voluntary, with a random selection process, as in most existing schools. Despite the random selection process in the UCLIC, residency selection and practice location remain the outputs of greatest interest to rural communities.

At the onset of the program, to gauge receptiveness and guide program development, students were surveyed regarding their demographic backgrounds, career plans and attitudes toward undertaking the UCLIC.[14] Students who participated in the survey generally recognized the educational value of the UCLIC program, but were concerned about the social and professional implications of leaving the Calgary site; this was particularly evident among the married students. Interest in pursuing the UCLIC program was highest among students considering family medicine as a career path.[14] However, because the LIC has been proposed as a method to respond to the health care needs of underserved rural communities, assessing possible changes in learner interest and demographics over time is important. This study investigates changes in attitudes toward the UCLIC and demographics of firs -year medical students at 3 time points between 2008 and 2015.

METHODS

First-year medical students from the University of Calgary's 3-year Undergraduate Medical Education Program were surveyed regarding their background demographics (i.e., sex, age, marital status, community of origin and residency plans), interest in pursuing the UCLIC program and attitudes toward LICs. Self-reported community of origin consisted of 4 options (rural: population < 10 000; small city: population 10 000–49 999; medium city: population 50 000–200 000; and metropolitan: population > 200 000). In keeping with the funding arrangement of rural programing by the provincial government and the Statistics Canada[15] recommendation to select rurality based on the context of each rural issue under investigation, we grouped background data dichotomously (metropolitan v. nonmetropolitan origin) in the analyses. The study was conducted as a cross-sectional analysis at 3 intervals by administering the same 35-item, self-report instrument to the classes of 2009, 2010 and 2015.

The previously developed, 7-factor instrument consists of 35 positively worded questions measured on a 5-point Likert scale (i.e., 1 = strongly disagree to 5 = strongly agree).[14] The 7 discrete factors were as follows: 1) physician role/responsibility/exposure/preparation, 2) practice exposure/exam preparation, 3) collaboration with other health care professionals, 4) exposure to rural medicine, 5) support of undergraduate medical education program/medical school, 6) personal implications of a rural community placement, and 7) maintain existing/develop new professional relationships. An overall value for each factor was calculated by summing the mean value of the individual items comprising each factor and dividing by the number of items (Table 3).

All data were analyzed in Stata version 12.1 using the Pearson χ^2 or Fisher exact test for categorical demographic variables. Independent samples *t* tests were used to explore statistically significant changes in students' perceptions as measured by the attitude instrument. Logistic regression analysis was employed to identify the influence of predictor demographic and attitude variables on students' consideration of the UCLIC program; student interest was treated as a binary variable (i.e., "yes" to considering UCLIC v. "no" or "undecided"). Internal reliability of each factor, and the overall survey instrument, were estimated using the Cronbach α statistic.

This study received ethics approval from the Conjoint Health Research Ethics Board of the University of Calgary.

RESULTS

Overall, 321 (75%) students completed the survey. Response rates and student demographics within each class year are shown in Table 4. Participant demographics were reflective of those within each class. Between the classes of 2009 and 2010 there

was a substantial and maintained increase in the proportion of female respondents, and between the classes of 2010 and 2015 there was a significant decrease in the proportion of participants from communities with populations less than 50 000 (49%–33%, $\chi^2 = 6.1$, $p < 0.05$).

From the full sample, 134 students (42%) reported that they would consider participating in the UCLIC program, 42 (13%) that they would not consider participating and 145 (45%) that they were undecided. About three-quarters (76.1%) of decided participants (i.e., excluding undecided participants) identified that they would consider UCLIC. Within the decided group, there was no significant difference between female and male students in interest in pursuing UCLIC ($\chi^2 = 2.7$, $p > 0.05$). Logistic regression analysis exploring the relation of a student's age and their consideration (yes or no) of the UCLIC program identified a significant trend. As age increased, so did consideration of UCLIC ($p < 0.05$, odds ratio 1.06, 95% CI 1.00–1.13). Further analysis identified that students 25 years of age and older were significantly more likely to have responded that they would consider application to the UCLIC program ($\chi^2 = 6.0$, $p < 0.05$). Similarly, older students were also more likely to consider UCLIC versus being undecided ($\chi^2 = 4.8$, $p < 0.05$). However, older students were just as likely as younger students to be present in the undecided group ($\chi^2 = 2.7$, $p > 0.05$).

Table 3 (part 1 of 2): Survey results from first- ear medical students from 3 different class years

	Class year; mean ± SD score*			
To what extent do you agree or disagree with the following statements about the University of Calgary Longitudinal Integrated Clerkship?	**2009 *n* = 92**	**2010 *n* = 108**	**2015 *n* = 121**	**Total *n* = 320**
Factor 1: Physician role/responsibility/exposure/preparation (9 items; α = 0.89)	4.0 ± 0.6	4.1 ± 0.6	4.0 ± 0.5	4.0 ± 0.6
Q12: Continuity with a small number of preceptors will be enhanced.	4.2 ± 0.7	4.2 ± 0.7	4.1 ± 0.6	4.2 ± 0.7
Q13: I will be given more responsibility for patient care than in the traditional clerkship.	4.2 ± 0.7	4.2 ± 0.7	4.1 ± 0.7	4.2 ± 0.7
Q14: I will have more opportunity for hands-on learning (procedures).	4.2 ± 0.7	4.4 ± 0.7	4.2 ± 0.7	4.3 ± 0.7
Q15: I will have more opportunity to become a valuable member of the medical team.	4.0 ± 0.7	4.2 ± 0.7	4.1 ± 0.8	4.1 ± 0.7
Q16: I will be better prepared to respond to comprehensive questions about patient care on the MCC exam.	3.7 ± 0.7	3.8 ± 0.8	3.5 ± 0.9†	3.7 ± 0.8
Q18: I will receive more extensive teaching/feedback than in the traditional clerkship.	3.7 ± 0.8	3.7 ± 0.8	3.8 ± 0.8	3.7 ± 0.8
Q19: My preceptors will be able to write a more impactful reference letter for CaRMS.	4.0 ± 0.9	4.0 ± 0.9	4.0 ± 0.8	4.0 ± 0.9
Q26: I will have a greater opportunity to develop personal relationships with my preceptors and other physicians.	4.2 ± 0.7	4.3 ± 0.6	4.2 ± 0.7	4.2 ± 0.7
Q29: I will be more effective when I begin residency training	3.4 ± 1.0	3.6 ± 0.9	3.5 ± 0.8	3.5 ± 0.9
Factor 2: Practice exposure/exam preparation (7 items; α = 0.78)	3.7 ± 0.6	3.6 ± 0.5	3.6 ± 0.5	3.6 ± 0.5
Q1: I will receive sufficient exposure to all areas of medicine	3.7 ± 0.9	3.6 ± 0.8	3.6 ± 0.8	3.6 ± 0.8
Q2: I will receive sufficient exposure to different p actice styles.	3.7 ± 0.8	3.7 ± 0.8	3.6 ± 0.7	3.7 ± 0.7
Q3: I will be well prepared to write the MCC exam.	3.9 ± 0.7	4.0 ± 0.6	3.8 ± 0.6†	3.9 ± 0.7
Q24: There will be more opportunity to understand how the management of a hospital/clinic is achieved.	3.9 ± 0.9	3.8 ± 0.9	3.7 ± 0.8	3.8 ± 0.8
Q25: I will have opportunity to learn more about all areas of medicine through patient-focused experiences.	3.8 ± 0.8	3.7 ± 0.9	3.7 ± 0.8	3.7 ± 0.8
Q28: I expect to be better prepared for clerkship assessment examinations.	3.3 ± 0.8	3.4 ± 0.9	3.4 ± 0.8	3.4 ± 0.8
Q38: I will receive more comprehensive exposure to clinical presentations offered in the UME curriculum.	3.5 ± 0.8	3.4 ± 0.8	3.4 ± 0.8	3.4 ± 0.8
Factor 3: Collaboration with other health care professionals (5 items; α = 0.82)	3.9 ± 0.6	3.8 ± 0.6	3.8 ± 0.5	3.9 ± 0.6
Q9: It will give me greater opportunity to work with nurses one-on-one.	4.0 ± 0.7	4.0 ± 0.7	4.0 ± 0.7	4.0 ± 0.7
Q30: It will prepare me to be more patient-focused as a resident.	3.8 ± 0.8	3.8 ± 0.7	3.7 ± 0.8	3.8 ± 0.8
Q32: It will allow me to explore more comprehensive relationships with other allied health care professionals (e.g., pharmacists, nurses).	3.9 ± 0.7	3.7 ± 0.8	3.7 ± 0.7	3.8 ± 0.7
Q33: I will have more opportunity to get to know other members of the hospital/clinical community.	4.1 ± 0.7	4.0 ± 0.8	3.9 ± 0.7	4.0 ± 0.7
Q37: I expect to develop better collaborations with the other allied health care workers (e.g., pharmacists, nurses).	3.8 ± 0.8	3.7 ± 0.7	3.8 ± 0.7	3.8 ± 0.7

The results showed no difference between the married and single groups in interest in UCLIC (χ^2 = 0.7, p > 0.05). Respondents who identified their community of origin as nonmetropolitan were significantly more interested in pursuing UCLIC than students from a metropolitan background (χ^2 = 4.1, p < 0.05). Students who were interested in pursuing a career in family medicine were significantly more likely to consider UCLIC than students who were interested in Royal College of Physicians and Surgeons of Canada (RCPSC) specialties (χ^2 = 24.7, p < 0.001). The results also showed that there was no significant difference in decisiveness (either yes or no) toward considering UCLIC between students who were decided on a career path (family or other specialty) and those who were undecided (χ^2 = 0.3, p > 0.05). These results are summarized in Table 5.

Analysis of surveys from each of the class years identified important shifts in student attitudes and interests (Table 5). Within the class of 2009, 39% responded that they would consider UCLIC, 25% that they would not consider the program and 36% that they were undecided. In this class, students interested in family medicine were significantly more interested in pursuing UCLIC (χ^2 = 15.1, p < 0.001). In the class of 2010, 41% of students reported they would consider UCLIC, 8% that they would not consider UCLIC and 51% that they were undecided. Compared with the class of 2009, there was a significant decrease in the class of 2010 in the proportion of

Table 3 (part 2 of 2): Survey results from first- ear medical students from 3 different class years

	Class year; mean ± SD score*			
To what extent do you agree or disagree with the following statements about the University of Calgary Longitudinal Integrated Clerkship?	**2009 *n* = 92**	**2010 *n* = 108**	**2015 *n* = 121**	**Total *n* = 320**
Factor 4: Exposure to rural medicine (4 items; α = 0.71)	4.4 ± 0.5	4.4 ± 0.4	4.2 ± 0.5‡	4.3 ± 0.5
Q4: I will receive valuable exposure to allied health care in the community.	4.3 ± 0.6	4.3 ± 0.7	4.0 ± 0.7†	4.2 ± 0.7
Q6: I will gain valuable exposure to rural medical practice.	4.7 ± 0.7	4.7 ± 0.5	4.5 ± 0.7†	4.6 ± 0.7
Q20: I will receive extensive exposure to continuity of patient care.	4.2 ± 0.6	4.2 ± 0.7	4.1 ± 0.7	4.2 ± 0.7
Q27: I will learn more about the role of a physician in the community.	4.3 ± 0.6	4.4 ± 0.6	4.1 ± 0.7†	4.2 ± 0.6
Factor 5: Support of UME program/medical school (4 items; α = 0.64)	3.8 ± 0.5	3.8 ± 0.6	3.7 ± 0.5	3.8 ± 0.5
Q7: I will be treated fairly academically by the UME office if a conflic with my preceptor arises.	4.1 ± 0.6	4.1 ± 0.8	4.1 ± 0.7	4.1 ± 0.7
Q10: I'm satisfied that there is an adequate "safety net" for students if the integrated community clerkship does not work out.	3.1 ± 0.8	3.3 ± 0.9	3.3 ± 0.7	3.2 ± 0.8
Q21: I will see a wide range of undifferentiated patient problems.	4.0 ± 0.7	3.8 ± 0.8†	3.7 ± 0.6	3.8 ± 0.7
Q34: I will receive the same support from the UME office as other clerkship options.	3.9 ± 0.7	3.8 ± 0.7	3.8 ± 0.7	3.8 ± 0.7
Factor 6: Personal implications of a rural community placement (4 items; α = 0.57)	3.3 ± 0.8	3.1 ± 0.6	3.1 ± 0.7	3.2 ± 0.7
Q8: Moving (including my family) to a small community for 8 months is doable/practical.	3.0 ± 1.3	3.1 ± 1.2	3.1 ± 1.1	3.1 ± 1.2
Q17: I will receive greater exposure to physician lifestyle than in the traditional clerkship.	3.4 ± 0.9	3.5 ± 0.9	3.3 ± 0.9	3.4 ± 0.9
Q31: Costs (e.g., accommodations, travel) of participating in the ICC is manageable.	3.7 ± 0.8	3.3 ± 0.9†	3.3 ± 0.8	3.4 ± 0.8
Q35: I am not concerned about the social implications of living in a smaller community outside of the city.	3.0 ± 1.3	2.8 ± 1.3	2.9 ± 1.2	2.9 ± 1.2
Factor 7: Maintain existing/develop new professional relationships (2 items; α = 0.40)	3.2 ± 0.7	3.2 ± 0.7	3.2 ± 0.7	3.2 ± 0.7
Q11: Although physically removed from the medical school I will be able to stay "connected" to my classmates.	3.0 ± 0.9	2.9 ± 0.9	2.9 ± 0.9	2.9 ± 0.9
Q36: I will receive more in-depth exposure to some specific areas of medicine.	3.4 ± 0.9	3.4 ± 1.0	3.5 ± 0.9	3.4 ± 0.9

CaRMS = Canadian Residency Matching Service; MCC = Medical Council of Canada; SD = standard deviation; UME = undergraduate medical education.
*Using a 5-point Likert scale.
†Significant hanges using the Student *t* test for unpaired samples with unequal variances at a critical level of 0.05 between 2 classes.
‡Significant hanges using the Student *t* test for unpaired samples with unequal variances at a critical level of 0.005 between 2 time points.

students responding that they would not consider UCLIC ($\chi^2 = 6.6$, $p < 0.05$). This was accompanied by a decrease in the proportion of students interested in specialty disciplines responding that they would not consider UCLIC. That is, in the 2009 class 45% responded that they would not consider UCLIC compared with only 15% in the class of 2010 (Table 5). Although there were no significant changes between the classes of 2010 and 2015, there has been a trend of gradually increasing interest in the rural LIC, rising from 39% of participants considering UCLIC in 2009, to 41% in 2010 and 45% in 2015.

The previously validated instrument we used to investigate students' attitudes toward integrated clerkships was shown in this study to have high overall internal reliability (Cronbach $\alpha = 0.9$). This tool describes 7 discrete factors (Table 3). Respondents were most in agreement with factor 4 (that UCLIC would give them exposure to rural medicine), and least in agreement with factor 6 (manageable personal implications of a rural community placement) and factor 7 (ability to maintain existing/develop new professional relationships). Of the 7 factors, only factor 4 (that UCLIC would give them exposure to rural medicine) showed a significant change between any of the time points; decreasing from a mean score of 4.4 ± 0.4 standard deviations for the class of 2010 to a mean score of 4.2 ± 0.5 for the class of 2015 ($t = 3.2$, $p < 0.005$). The student attitude toward this factor significantly decreased among the participants interested in family medicine ($t = 2.1$, $p < 0.05$), but not among those interested in nongeneralist specialties ($t = 1.11$, $p > 0.05$).

In general, student's attitudes toward UCLIC were positive, with an overall mean attitude score of 3.8 ± 0.4. Students showed the least agreement toward item 11 ("although physically removed from the medical school I will be able to stay 'connected' to my classmates") with a mean score of 2.9 ± 0.9, and item 35 ("I am not concerned about the social implications of living in a smaller community outside of the city") with a mean score of 2.9 ± 1.2. Student responses were most in agreement with item 6 ("I will gain valuable exposure to rural medical practice") with a mean score of 4.6 ± 0.7.

Students interested in pursuing a career in family medicine reported significantly more positive attitudes toward all 7 factors ($p < 0.05$). Respondents from rural or regional backgrounds were significantly more positive toward factor 3 (collaboration with other health care professionals) ($t = 2.3$, $p < 0.05$) and factor 6 (personal implications of a rural community placement) ($t = 3.9$, $p < 0.001$). Female sex was significantly associated with more positive scores for factor 3 (collaboration with other health care professionals) ($t = 2.7$, $p < 0.05$). With

Table 4: Survey response rates and demographics of first- ear medical students who completed the survey

	Class year; no. (%)*			
Variable	2009	2010	2015	Total
Response rate	92/125 (74)	108/135 (80)	121/170 (71)	321/430 (75)
Sex				
Male	47 (51)	41 (38)	49 (40)	137 (43)
Female	45 (49)	67 (62)	72 (60)	184 (57)
Age, mean ± SD, yr	24.8 ± 4.4	24.5 ± 3.1	25.3 ± 4.0	24.8 ± 3.8
Community of origin				
Nonmetropolitan (population < 200 000)	44 (48)	53 (49)	40 (33)	137 (43)
Metropolitan (population > 200 000)	48 (52)	55 (51)	81 (67)	184 (57)
Marital status				
Single	75 (82)	86 (80)	100 (83)	261 (81)
Married†	17 (18)	22 (20)	21 (17)	60 (19)
Career plans				
Family medicine	16 (17)	16 (15)	18 (15)	50 (16)
Specialty	40 (43)	40 (37)	55 (45)	135 (42)
Undecided	36 (39)	52 (48)	48 (40)	136 (42)

SD = standard deviation
*Unless stated otherwise.
†Includes common-law relationships.

respect to marital status, students who were married (or in a common-law relationship) reported significantly more positive attitudes toward factor 1 (physician role/responsibility/exposure/preparation) (t = 2.1, p < 0.05) and factor 4 (exposure to rural community placement) (t = 2.5, p < 0.05). Students who were 25 years of age or older indicated more positive attitudes with respect to factor 1 (physician role/responsibility/exposure/preparation) (t = 2.4, p < 0.05), factor 2 (practice exposure/exam preparation) (t = 2.3, p < 0.05), factor 4 (exposure to rural medicine) (t = 3.0, p < 0.05) and factor 6 (personal implications of a rural community placement) (t = 2.7, p < 0.05).

DISCUSSION

Across each of the 3 class years, students at the University of Calgary consistently reported positive attitudes toward the rural LIC program. The results described here demonstrate that there has been a significant shift among students interested in medical specialties; they are now more likely to consider a rural LIC. These results further suggest that not only is the value of a rural LIC well recognized among students, there is also increasing consideration from students who were previously less interested.

The 7 factors defined by this survey instrument were previously identified and validated on a cohort of first-year medical students before the implementation of the UCLIC program.[14] Previous investigation suggested that even before the establishment of the UCLIC program, students recognized its educational value, but they expressed substantial concern about the social implications of moving to a rural community. The previous results also showed that students with an early intent on pursuing family medicine were significantly more likely to consider the UCLIC program, as compared with students interested in RCPSC specialties.[14]

The most substantial shift in interest toward pursuit of UCLIC occurred between the classes of 2009 and 2010, among students interested in medical specialties. In the class of 2009, students interested in

Table 5: First-year medical students who would consider a rural integrated community clerkship, by class year, community of origin and identified inte est in family medicine or a specialty discipline

Class year	Community of origin	Career plans/residency discipline	Would consider UCLIC, %		
			Yes	No	Undecided
2009 (*n* = 92)	Nonmetropolitan	Family (*n* = 12)	83	0	17
		Specialty (*n* = 18)	28	44	28
		Undecided (*n* = 14)	57	7	36
	Metropolitan	Family (*n* = 4)	50	0	50
		Other (*n* = 22)	14	46	41
		Undecided (*n* = 22)	36	18	46
2010 (*n* = 108)	Nonmetropolitan	Family (*n* = 8)	75	0	25
		Other (*n* = 17)	24	18	59
		Undecided (*n* = 28)	50	0	50
	Metropolitan	Family (*n* = 8)	50	12	38
		Other (*n* = 23)	30	13	56
		Undecided (*n* = 24)	38	8	54
2015 (*n* = 121)	Nonmetropolitan	Family (*n* = 5)	80	0	20
		Other (*n* = 22)	41	9	50
		Undecided (*n* = 13)	46	0	54
	Metropolitan	Family (*n* = 13)	69	8	23
		Other (*n* = 33)	36	18	46
		Undecided (*n* = 35)	40	3	57
Total (*n* = 321)	Nonmetropolitan	Family (*n* = 25)	80	0	20
		Other (*n* = 57)	32	23	46
		Undecided (*n* = 55)	51	2	47
	Metropolitan	Family (*n* = 25)	60	8	32
		Other (*n* = 78)	28	24	47
		Undecided (*n* = 81)	38	9	53

UCLIC = University of Calgary Longitudinal Integrated Clerkship.

family medicine were significantly more likely to consider the UCLIC than students interested in specializations. Between the classes of 2009 and 2010, a greater proportion of the students interested in specialties identified themselves as considering UCLIC, or being undecided toward UCLIC, as opposed to responding that they would not consider the program. This change was maintained in the final year of the survey

Although these results do describe a shift over time in demographic interest toward LICs, it remains a limitation that we cannot clearly differentiate between attitude changes over time and changes between classes resulting from shifts in admission criteria and applicant pools.

Although the reasons were not explored as part of this investigation, it is reasonable to speculate that a number of different factors may have contributed to the attitude shift among students interested in specialties. Given the inherent competition for residency, students may be seeking strategies to improve their chances for a residency match by undertaking programs that may distinguish them. Based on anecdotal information from UCLIC students, very high match rates with first-choice residency program have occurred for UCLIC students. This information may be reaching students and affecting their perceptions. Alternately, with the recently reported underemployment of medical specialists in Canada,[16] students may be exploring previously unconsidered practice locations. Lastly, as LIC programs become more common, and as educational equivalency has been demonstrated, students may simply feel more comfortable with a career based in generalism.

At each survey administration, student attitudes were generally positive toward the different aspects of the UCLIC, and overall trends suggest increasing student interest between classes. Student career plans and demographics appear to have a substantial influence on their perceptions of specific aspects of rural LICs. Consistent with observations at other schools, female students, students older than 25 years, students from smaller communities and students interested in family medicine were more positive toward individual aspects of rural LICs and were more likely to consider the UCLIC program.[17] These general trends in sex, age and background have been previously identified among rural LIC programs.[17,18] However no other program has yet reported increasing interest in rural LICs specifi ally among students intending to pursue medical specialty disciplines.

We observed an increase in consideration of UCLIC among students with a declared early interest in specialty medical careers; this self-reported interest indicates a need for further research. Whereas Brooks and colleagues[17] noted a stable career plan for rural LIC graduates over time, the increase in consideration of UCLIC early in a specialty-focused career may translate into a shift in career interest away from rural primary care. This shift in student interest may therefore negatively impact one of the social accountability goals of LICs to respond to the needs of underserved rural communities. In contradistinction, if the proportion of students with an early career interest in specialties increases in the UCLIC program, and if program outcomes for primary care and rural practice remain stable, the program must be affecting the career choices of participants, and the determinants must be delineated and transferred to other programs.

CONCLUSION

Students at the University of Calgary have consistently expressed generally positive attitudes toward specific educational and experiential aspects of rural LICs. Our results show that there has been increasing student interest between class years that may reflect a trend over time, particularly among students from urban backgrounds intending to pursue RCPSC specialties. This shift must be studied to determine whether this increased interest from students interested in specialties affects the number of graduates who go on to practise in a rural location. Student demographics and career interests continue to have a substantial effect on whether a student will consider participating in a rural LIC.

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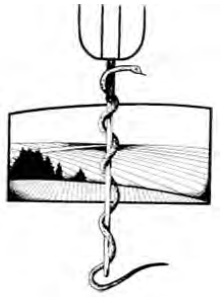
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