Case 1 - AJ: Lower Extremity Cellulitis

You are on your orthopedic surgery rotation. You are at your attending's office when you meet A.J., a 55 year-old man of First Nations descent. He is presenting for a six-month follow-up of his right below-knee amputation. His post-operative course was complicated by several infections, likely secondary to his poorly-controlled Type 2 Diabetes Mellitus. You check his chart and note that "no fixed address" is listed in his demographic information. He states he has been living in a convalescent wing of a local shelter to recover from his surgery and the post-operative wounds that ensued. He relies on the use of a wheelchair for ambulation, provided by the shelter.

Resources, unless otherwise noted:

- Bonin E, Brehove T, Carlson C, Downing M, Hoeft J, Kalinowski A, Solomon-Bame J, Post P. (2010). Adapting your practice: general recommendations for the care of homeless patients. Nashville: Health Care for the Homeless Clinicians' Network.
- Brehove, T., Joslyn, M., Morrison, S., Strehlow, A. J., and Wismer, B. (2007). Adapting your practice: treatment and recommendations for homeless people with diabetes mellitus. Nashville: Health Care for the Homeless Clinicians' Network.
- Bloch, G. Primary care interventions into poverty. http://ocfp.on.ca/cme/povertytool (accessed 3 February, 2014).

Question 1: List three ways in which A.J.'s mobility restrictions can impact his health.

- Difficulty in getting to and from doctor's appointments to seek care.
- Ability to exercise and maintain a healthy weight, worsening his diabetes and predisposing him to cardiovascular disease and other conditions.
- Safety in the shelter and on the streets. The loss of a limb affects his ability to seek a safer environment or to defend himself. This also lends itself to a stressful living situation, impacting A.J.'s psychological well-being.

As you conduct the physical exam, A.J. comments that his left foot has been painful for the last few days whenever he applies weight to the limb. You examine his foot, noting a shallow, non-purulent ulcer to the heel. The surrounding skin is red, hot and indurated. He denies fever or other constitutional symptoms, but you suspect cellulitis.

Question 2: You discuss your concerns with A.J. and recommend that he needs antibiotic therapy. What are two important considerations when prescribing this treatment?

- Paying for and obtaining the antibiotic, either oral or intravenous (the latter will require either inpatient or outpatient antibiotic therapy depending on the region in which you practice).
- Close follow-up of his cellulitis, with lower threshold for admission to hospital

care. A.J.'s access to proper nutrition, the ability to elevate his leg during the day and access to wound care will impact wound healing. His diabetes makes the chance of progression to more serious infections, such as osteomyelitis, more likely and more rapid to develop.

One week later, you are on your family medicine rotation in the inner city where again, you meet A.J. He managed to not require hospital admission and is slowly improving on antibiotics. You are checking his latest lab results and note that his glycemic control has been poor for several years, with an HbA1c ranging between 10-12%. He has not responded to oral antihyperglycemics and his physician is considering placing him on insulin therapy.

Question 3: While controlling his serum glucose is a priority, what are three concerns regarding the prescription of insulin?

- Risk of hypoglycemic episodes due to, for example, access to regular meals. Tight glucose control may not be recommended as a result.
- Lack of access to refrigeration to store insulin.
- If using syringes for insulin injection, these become a target of theft. Pen injectors are recommended if this is a concern.

You decide to go ahead with insulin therapy, but A.J. is concerned that he won't be able to afford the medication.

Question 4: What about A.J.'s social and health context could help with finding financial aid to help pay for his medications?

- Living with a physical disability – he may be eligible for tax credits or other financial aid.
- Aboriginal, with status, can pay for drugs and extended health benefits not covered by provincial plans.

Case 2 – LT: Tuberculosis

L.T. is a 53-year-old recent immigrant from India who comes to your walk-in clinic today at his wife's prompting. For three months, he has felt tired and generally unwell, has had progressive weight loss, and has a worsening cough. He has also been experiencing fevers, night sweats, and occasional hemoptysis. He has a 20-pack-year smoking history, no significant medical history, takes no medications, and has not seen a doctor since his immigration medical check. He received the BCG vaccine as a child and has never had an HIV test.

L.T. and his family of four lived in a shelter for a few months after arriving in Canada. Recently, they moved into a cramped, two-bedroom apartment that they share with another family of three to share costs. L.T. is worried about providing for his family and that they may lose the apartment if he cannot find a job.

Resources consulted for this case, unless otherwise stated:
Gaetz S, Donaldson J, Richter T, & T Gulliver (2013): The State of Homelessness in Canada 2013. Toronto: Canadian Homelessness Research Network Press.
Greenaway C, Khan K, & Schwartzman K (2013): Chapter 13: Tuberculosis surveillance and screening in high-risk populations. Canadian Tuberculosis Standards – 7th Edition. Canadian Thoracic Society and The Public Health Agency of Canada.

Question 1: How would you define L.T.'s housing status? Describe a link between housing and health status.

- L.T. is currently at risk of experiencing homelessness (two-bedroom shared apartment, not employed and financial strain). Prior to moving to the apartment, L.T. and his family's housing status would be categorized as "emergency sheltered".
- Any unstable housing situation can be linked with individuals' vulnerability, which can influence all aspects of their health (e.g. physical, mental, psychosocial)

Question 2: What are some important diagnoses that you need to rule out and what social risk factors does he have?

- Tuberculosis (immigration from TB-endemic country, lived in a shelter, crowded housing, unknown HIV status, unknown results of his immigration medical check). A growing proportion of active TB cases among people experiencing a form of homelessness are foreign-born. Immigration medical exams are conducted in an effort to identify (and treat) active TB cases. Between 18-51% of individuals experiencing homelessness in Canada have positive TB skin tests, most of whom have latent TB infection (LTBI). People with LTBI experiencing some form of homelessness may be more likely to progress to active TB for a variety of reasons (e.g. medical comorbidities like HIV and diabetes may not be well-controlled, lower LTBI treatment completion rates)

- Lung cancer (smoking history)
- HIV infection

At this time, you decide to order a chest x-ray to assess for evidence of pulmonary tuberculosis or lung cancer, an HIV test, and some basic blood work.

Question 3: List three things about L.T.'s current living situation that you need to take into consideration when planning further investigations and follow-up for L.T.

- At risk for losing his housing
- Limited financial resources
- Potential difficulty contacting L.T. and/or ensuring he can attend appointments
- Confirm address and contact numbers, including emergency contacts.
- Crowded housing puts others at risk if he has active tuberculosis

You were able to arrange a chest x-ray for the same day as L.T.'s initial appointment and a follow up appointment for him with you later this week. Your clinic provided him with tickets for public transportation for these.

The radiologist at the lab calls you the next day and faxes over L.T.'s report: it is positive for infiltrates and cavitary lesions in the right upper lobe. This plus his symptoms are indicative of pulmonary tuberculosis.

Question 4: What are your next steps in managing L.T.'s likely diagnosis?

- Arrange for bacteriological confirmation (e.g. specimen collection for Acid Fast Bacilli smear and culture)
- Start discussion and education about tuberculosis with L.T. (diagnosis, treatment, how drug resistance occurs, importance of adherence and isolation requirements)
- Ensure L.T. knows he will not have to pay for his TB medications (active and latent TB treatment medications are publicly funded)
- Contact public health for:
  - Reporting tuberculosis case
  - Assistance with arranging treatment (e.g. directly observed therapy)
  - Assistance with patient education and contact tracing and TB screening (individuals recently exposed to L.T. – e.g. in his apartment, the shelter – will need appropriate screening for TB)
- If available in your community, other options for treatment and monitoring include referring L.T. to a comprehensive TB treatment clinic or to a physician with TB experience
- Consider a referral to a social worker or community worker who could assist L.T. with his housing and employment concerns, to see how he is managing with treatment
- Follow up on results of HIV test

Case 3 – NE: Myocardial Infarction and Risk Factor Management

You are working with the inpatient medicine/cardiology service at your hospital and are tasked with completing the discharge planning for patient N.E. N.E. is a 48 year old man who was admitted four days previously with a non-ST elevation myocardial infarction (NSTEMI). He presented to the emergency department with acute onset chest pain, leading to this diagnosis.

Prior to this visit, N.E. last saw a physician approximately fifteen years ago. His past medical history is significant for 30 pack years of smoking and a remote history of depression. On this admission, he is noted to have hypercholesterolemia and hypertension.

N.E. was on no medications at the time of admission to hospital. His current medications include: Aspirin, Metoprolol, Ramipril, Hydrochlorothiazide, and Atorvastatin. In accordance with the American Heart Association Guidelines, discharge planning also includes smoking cessation, a low-fat diet, and cardiac rehabilitation.

While discussing discharge planning, N.E. discloses that he has been staying at a homeless shelter for the past month. Prior to that time, he was working occasionally as a handyman and staying with a friend, who has since moved out of the city. At this point, both the patient N.E and the care provider (you) are feeling overwhelmed by the complexity of his discharge planning.

Question 1: How comfortable are you assessing housing status during discharge planning?
Do you regularly incorporate it into care planning for patients?
How might earlier knowledge regarding N.E.'s housing status have been helpful?

Unless otherwise noted, discussion points below are from Greysen SR et. al. Improving the Quality of Discharge Care for the Homeless: A Patient-Centered Approach. J of Health Care for the Poor and Underserved, May 2013; 24(3):444-455.

- In a survey of 98 homeless persons in New Haven, 56% reported that they had not been asked about housing status on their most recent hospital visit. Patients reported that they feared discrimination if they reported their housing status, as healthcare providers might assume they were seeking shelter rather than care for a medical condition.
- Investigators in the above study asked participants how healthcare providers could better approach discussions around housing with patients. Participants recommended approaching the topic with concern for the patient's well-being and safety. For example, Greysen et. al. suggest asking "Do you have a place to stay where you feel safe?" rather than directly asking patients "Are you homeless?"
- When housing status was addressed, patients were more likely to report

discussion of medication cost, primary care follow-up, physical activity, diet, transportation, and mental health follow-up.

One paper describes the use of a pneumonic to better plan for discharge of the homeless inpatient. Framing the discussion around "A SAFE DC" may be an easy way to ensure that critical components of discharge planning are not missed. See Best JA and A Young. A SAFE DC: A conceptual framework for care of the homeless inpatient. J of Hospital Medicine 2009;4:375-381.

A = Assess housing status

S = Screening and prevention
A = Address primary care issues
F = Follow-up care
E = End of life discussions

D = Discharge instructions, simple and realistic
C = Communication method after discharge

Question 2: How common is smoking amongst persons experiencing homelessness?
What unique barriers do you anticipate N.E. may encounter in trying to quit smoking?
What special considerations might you take in your approach to discussing smoking cessation with N.E?

Discussion points below are from Baggett T, Tobey M, Rigotti N. Tobacco Use among Homeless People - Addressing the Neglected Addiction. N Engl J Med, 2013 Jul 18; 369(3):201-4 unless otherwise noted.

- Approximately three quarters of homeless adults smoke cigarettes; a prevalence 4 times the general population and more than double that of other impoverished adults (US Data)
- Smoking-related deaths occur at double the rate of stably housed people
- Barriers to quitting include: lack of private drug plan limits access to smoking cessation therapy, nicotine use may ease psychiatric symptoms (especially from schizophrenia, see Silva 2013), smoking around shelters remains commonplace, there may be an expectation of premature death that diminishes perceived benefits of smoking cessation
- Baggett states: "The daily stressors of homelessness foster a present-oriented outlook that values immediacy over delay". He suggests focusing on short-term gains from smoking cessation in persons experiencing homelessness, such as fewer smoking-related symptoms and money saved from not purchasing cigarettes.

Question 3: What barriers might N.E. encounter in acquiring and taking his medications?
How might you overcome some of these barriers?

- Challenges in paying for medications - N.E. may qualify for provincial social assistance (e.g. Ontario Works), which would help to cover his medication costs. Prescribers should ensure that all medications prescribed are on the provincial formulary; this can be checked by searching your provincial e-formulary. Ontario's is here: https://www.healthinfo.moh.gov.on.ca/formulary/index.jsp
- Challenges adhering to a complex medication regimen - if possible, prescribe drugs with once daily rather than BID or TID dosing. Some combination therapies (eg. Ramipril/Hydrochlorothiazide) may be available on the provincial formulary and can also simplify the drug regimen. Providing simple tools, such as a pillbox, may also help with adherence
- Recognize that patients staying in shelters may have medications lost or stolen, therefore may require additional refills or prescriptions for reasons that are out of their control

Health Care for the Homeless Clinician's Network provides clinical practice guidelines for a number of conditions, including hypertension, hyperlipidemia, and heart failure. While an American resource, they can be tremendously valuable in preparing a care plan for a patient experiencing homelessness. Additional information about screening for homelessness is also provided. (Link on website)