

# Electronic Consultation by Advanced Practice Nurses to Improve Access to Specialist Care for Older Adults

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## ABSTRACT

Older adults face several challenges when accessing specialist care. Advanced practice nurses (APNs) can perform an important role in primary care for older adults, particularly when bolstered with digital tools. In the current study, we conducted a multiple case study of electronic consultations (eConsults) involving APNs to assess how these practitioners use the service to improve access to care. All eConsults submitted by or to an APN in 2019 on behalf of patients aged  $\geq 65$  years were reviewed to identify examples from six settings representative of the range of advanced nursing practices. For each setting, a final case was chosen using an iterative process and stratified by specialty and type of advice. Included cases were assessed using a conceptual framework for health care access. Selected cases illustrate how APNs can be effective users of eConsults in a diversity of health care settings. The framework allowed for an in-depth study of access over the range of interactions that take place among patients, caregivers, providers, and the health care system. [*Journal of Gerontological Nursing*, 48(4), 33-40.]

**T**he global population is aging and, by 2050, the United Nations (UN Department of Economic and Social Affairs, 2019) estimates that the number of persons

aged  $\geq 80$  years will triple. Older adults face unique challenges in accessing care at primary care and specialist care interfaces, including a high prevalence of frailty, mobility issues, and

multiple chronic conditions (Davis et al., 2011; Fried et al., 2001; Schoen et al., 2009). Nurses in advanced practice roles can and are playing an important role in addressing these care gaps (Donald et al., 2013; Maier et al., 2017).

Advanced practice nurses (APNs), comprising nurse practitioners (NPs) and clinical nurse specialists (CNSs) (Canadian Nurses Association, 2019), represent an expanding and evolving vehicle for innovation and health care reform (Bryant-Lukosius & Martin-Misener, 2015). Many countries are adopting the APN role to account for a shortage of medical professionals, especially for underserved and vulnerable populations (Bonsall & Cheater, 2008), and to offer access to specialist expertise and advice in areas such as wound care and geriatric emergency medicine.

The use of digital health tools in nursing can facilitate better access to care. In our region of Eastern Ontario, Canada, electronic consultation (eConsult) has been offered freely to nurses working in advanced practice roles for several years (Liddy et al., 2013). A previous assessment of NPs' use of eConsult as primary care providers (PCPs) has demonstrated their high levels of satisfaction with the service (Liddy, Deri Armstrong, et al., 2016). However, questions remain

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Disclosure: The authors have disclosed no potential conflicts of interest, financial or otherwise.

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doi:10.3928/00989134-20220307-02

about the use of eConsult by APNs, particularly in geriatric care, and its role in facilitating access to care for older adults.

We sought to explore how APNs' use of the Champlain BASE™ eConsult service (Liddy et al., 2013) may improve access to specialist care for older adults in a variety of settings. The current article is of relevance to clinicians, policymakers, researchers, and patient advocates who are interested in exploring how digital health tools, such as eConsult, can be used to support APNs providing geriatric care.

## METHOD

### Study Design

We conducted a multiple case study informed by Yin's (2009a) case study methodology and modeled after a previous case study by our research group (Liddy, Joschko, et al., 2019) to retrospectively review eConsults through the lens of Levesque et al.'s (2013) theoretical framework on access to health care. The basic unit of analysis (the "case") in this study was the interaction contained in an eConsult—communication logs between the PCP (person submitting the eConsult) and specialist (person responding to the eConsult).

### Champlain BASE™ eConsult Service

The Champlain BASE™ eConsult Service operates in a health region in Eastern Ontario, Canada, with a population of 1.3 million (Liddy et al., 2013). All PCPs are eligible to use the service, including family physicians (FPs) and NPs. PCPs submit a non-urgent, patient-specific clinical question to one of more than 150 specialty groups, attaching any additional files they deem relevant to the case (e.g., images, test results). Each case is assigned to a specialist based on their availability, and specialists are asked to reply within 7 days. In responding, specialists can do any of the following: provide a recommendation, request more information, or recommend a face-to-face referral. On this platform,

specialists can be physicians or CNSs (i.e., an advanced practice nursing role). The service allows PCPs and specialists to engage in iterative communication until the PCP ultimately closes the case.

### Data Collection

*Inclusion Criteria.* Eligible cases included all eConsults that were (a) closed between January 1 and December 31, 2019; (b) submitted by a NP (serving as the PCP) or responded to by a CNS (serving as the specialist); and (c) concerning a patient aged ≥65 years.

*Case Selection Criteria.* eConsults from a variety of practice settings were selected to reflect different contexts in which APNs provide care for older adults. One case from each of the following settings was included: a NP-led clinic (NPLC), a long-term care (LTC) setting, a rural setting, an urban community health center (CHC), and an urban family health team (FHT) (Glazier et al., 2012). In addition, an eConsult answered by a CNS (serving as the consulting specialist) was considered a distinct setting to make a total of six practice settings overall. Parameters used to define categories were not mutually exclusive (e.g., a case drawn from the LTC setting may also belong to the CNS setting).

A case identification strategy was established for each of the prespecified practice settings. The primary organization registered with the referring PCP was used to identify cases submitted from NPLCs, CHCs, and FHTs. Cases submitted by an identifiable subset of providers working in LTC homes were retrieved to identify cases submitted on behalf of patients living in LTC. Rurality Index for Ontario scores were used to identify rural cases (Glazier et al., 2012). As an additional layer of verification for each strategy, several keywords for each setting were identified that, if discovered in the log detail of the eConsult, would increase our confidence that a particular case was submitted from a

given setting. When such keywords were found, priority was given to those cases.

Communication logs of relevant cases were retrieved and further evaluated for eligibility by one reviewer (R.H.) based on the following criteria: (a) total word count (i.e., >150 words), (b) context provided in the case, (c) length of the interaction (i.e., an extended interaction between providers was given priority), (d) and the degree of observable APN involvement in the patient's care. Two reviewers (R.H., S.G.) independently reviewed the subset to narrow the sample down further and stratify cases to ensure diversity of specialty group and type of advice (e.g., diagnosis, suggestion for medication, treatment strategy). Reviewers met to compare their selection of cases and arrive at a consensus of five to six cases for each target group. Lastly, to make a final selection for each setting, cases were deidentified and reviewed by two APNs—an NP (C. Levi) and a CNS (K.L.)—each with clinical, research, and eConsult experience.

### Analysis

A modified framework method was adopted for thematic analysis of the final set of cases that were selected for the multiple case study (Crowe et al., 2011; Gale et al., 2013). This analysis was done through the lens of Levesque et al.'s (2013) conceptual framework of access to health care, which posits five dimensions of access arranged in chronological order to illustrate the range of interactions a patient has with the health care system: approachability, acceptability, availability, affordability, and appropriateness. Five corresponding dimensions represent the abilities of patients to interact with the dimensions of accessibility: ability to perceive, ability to seek, ability to reach, ability to pay, and ability to engage (Levesque et al., 2013).

Two reviewers (R.H., S.G.) independently read each case to apply the access framework and to iden-

tify which dimensions of accessibility emerged from the case content. Reviewers met to compare their findings and resolved any discrepancies by consensus. Further consensus on application of the framework was reached with all authors.

### Research Ethics Approval

The Ottawa Health Science Network Research Ethics Board provided ethics approval for this study (Protocol 2009848-01H).

## RESULTS

Upon applying the setting-specific case identification strategies described above to the eConsult dataset, the six categories of cases (each representing a practice setting) were established. These categories contained a case volume range of 23 to 120 eConsults per category. Application of the selection criteria to identify a single case for each category is depicted in **Figure A** (available in the online version of this article). Below we provide a description of each of the six cases, followed by findings from the application of Levesque et al.'s (2013) framework.

### Nurse Practitioner–Led Clinic Case

The NP contacted a spinal surgery specialist regarding a patient with chronic pain, which the patient noted felt similar to what they had experienced in a previous medical emergency. The NP attached recent imaging and a detailed history of the presenting illness, previous related surgeries, current and past medical problems, physical examination findings, and medications. The NP asked whether an in-person referral to spinal surgery or ongoing monitoring is more appropriate. The specialist suggested an in-person referral, noting “as [the patient] lives outside [a health region in Ontario], it may be difficult for [patient] to be seen at [a hospital in the health region] by the non-original surgeon. I appreciate that there may be long waits/difficulty

seeing a specialist in [a city near the patient].” Given these constraints, the specialist provided detailed recommendations for conservative care that may be more accessible, including fitness programs and an online resource that the patient could access via the internet, physiotherapy, psychosocial comorbidity management, cognitive-behavioral therapy, and analgesia.

### Long-Term Care Case

The NP submitted an eConsult to dermatology requesting assistance with the diagnosis and management of an LTC resident with a facial lesion. The NP provided images of the lesion, detailed medical history, medication history, and their proposed diagnosis. The NP also mentioned that the issue had been discussed with the patient's family. The dermatologist confirmed the NP's diagnosis and provided options for removal of the lesion, suggesting liquid nitrogen as a first course. The NP asked for further guidance on applying liquid nitrogen. The NP also asked if there was a topical cream that could be used instead. The dermatologist advised against topical cream and proposed a surgical option if the liquid nitrogen failed. The NP thanked the dermatologist and accepted the recommendation.

### Rural Case

An older patient presented to the NP expressing concerns about a new lesion on an internal organ from a recent imaging report. Although the patient had follow-up appointments scheduled, the NP submitted an eConsult to gastroenterology to see if a more urgent referral for biopsy was warranted. The NP also noted the patient was concerned due to a troubling family history. The specialist billed additional time for the eConsult, citing time spent researching the question and collecting resources. The specialist noted that although the current schedule for follow-up reporting was reasonable, the NP could, if concerned, refer to surgery for a formal opinion on the best course of action.

The specialist provided the name of a specific surgeon from a relevant field and detailed instructions on how to contact their office. Given that wait times are long and the referral may be declined, the specialist recommended simultaneously scheduling the appointment for follow-up imaging in 6 months.

### Urban Community Health Center Case

The NP contacted an endocrinologist requesting guidance for treatment of an older patient who required optimization of their diabetes medication. The patient arrived in Canada as a refugee, has few financial means, and cannot communicate in English, necessitating an interpreter. The patient is also illiterate and innumerate, making it difficult for them to manage their insulin. However, as oversight of dosage would require frequent appointments, the patient does not want to receive insulin treatment. The endocrinologist acknowledged the difficulty of the case and recommended pursuing insulin teaching from a local community service as a short-term solution. The specialist provided several tailored long-term management options, including getting help from family members, opting for safer insulin options, and purchasing special color-coded glucose monitors that do not rely on reading numbers.

### Urban Family Health Team Case

The NP submitted an eConsult to neurology regarding an older patient with chronic epilepsy. The patient and NP recognized a decline in memory and concentration over the past year. The NP provided the patient's medical and medication history and asked for advice regarding the dosage of the patient's antiepileptic therapy. The specialist confirmed the NP's suspicion that the patient's current dosage of medication was too high, provided a tapering schedule for the patient's current medication, and options for alternative agents, if desired, that are well-tolerated in older adults. The

TABLE 1

Emerging Themes from Applying Levesque et al.'s (2013) Framework of Access to Healthcare to Selected Cases

Health System Dimension	Example From Cases	Patient Ability	Example From Cases
<p><b>Approachability:</b> Patient can identify that a service exists, can be reached, and have an impact on their health.</p>	<p><b>Rural case:</b> Specialist provided contact information about specific gastroenterologists in the region, making the NP more aware of options that could be used to provide care for their patient.</p>	<p><b>Ability to Perceive:</b> Patient has sufficient health literacy and knowledge to be aware of services.</p>	<p><b>NPLC case:</b> NP described their patient presenting with concerns about recurring symptoms that previously necessitated an emergency visit to the hospital, thus illustrating that the patient perceived their NP as a primary touchstone for accessing other services in health care.</p>
<p><b>Acceptability:</b> Cultural and social factors that influence the possibility and judge appropriateness for people to seek and accept care in a way that can address the needs of diverse cultural, socioeconomically disadvantaged, and vulnerable populations.</p>	<p><b>Rural case:</b> NP tried to help the patient explore different health care options to address their concerns and ensure that their preferences were respected. The purpose of the eConsult was to explore options to expedite follow-up appointments and investigations to address the patient's fears on a timeline that would be more acceptable.</p>	<p><b>Ability to Seek:</b> Patient has personal autonomy and capacity to choose to seek care without feeling unsafe or uncomfortable.</p>	<p><b>Rural case:</b> NP describes their patient's concerns about receiving a recent imaging report and how it elicited fears based on their family history.</p>
<p><b>Availability:</b> Health services must be physically available in a timely manner for those seeking care.</p>	<p>Across all cases, APNs' (NP or CNS) use of eConsult demonstrated an ability to incorporate this tool into their practice, addressing potential mobility or transportation barriers by accessing specialist advice through a virtual avenue.</p> <p><b>LTC case:</b> NP noted that a therapy recommended by the initial specialist (liquid nitrogen) would be difficult to access from the LTC setting, prompting the specialist to recommend alternative options.</p>	<p><b>Ability to Reach:</b> Determined by factors such as the patient's personal mobility and availability of transportation—common barriers to access for older adults.</p>	<p><b>CNS, LTC, and urban CHC cases:</b> NP ensured that the patient's restricted ability to attend in-person appointments (e.g., due to being wheelchair dependent, living in LTC, or a general difficulty with making regular visits) was described in their initial question. In the LTC and urban CHC, this information evidently influenced the specialist's advice.</p>
<p><b>Affordability:</b> Financial issues—including direct costs of services, secondary costs arising from reaching a service, and opportunity costs related to seeking care—that may preclude the patient's ability to access care or obtain the optimal level of care.</p>	<p><b>CNS case:</b> NP and CNS mutually contributed to address their patient's affordability constraints.</p>	<p><b>Ability to Pay:</b> Patient's financial means, including income, assets, social capital, and health insurance, that influence their ability to access health services.</p>	<p><b>Urban CHC case:</b> NP mentioned the patient's financial challenges that could affect their ability to seek potential treatment options.</p>

specialist concluded the case by providing the scheduling and dosage for the new medication, including potential side effects.

### Clinical Nurse Specialist Case

The NP consulted wound care regarding a LTC resident experiencing a chronic skin ulcer on one leg. The NP requested suggestions for diagnosis and guidance on care, including how to properly dress the wound. The specialist, a CNS providing specialist services in wound care, requested more information on the patient's medical history, physical examination, and mobility status. The NP responded with the requested details, noting that the resident is completely wheelchair dependent, "is not always very compliant with care, and also does not have any drug coverage, therefore therapy is often limited due to financial reasons." The CNS used the additional information to provide tailored advice for how to redress the resident's wound, including multiple options to address the possible issue of affordability. An educational resource was provided to the NP to assist them with one of the recommended treatments.

### Levesque et al. Framework—Dimensions of Access Identified

Results from analyzing the six cases through the lens of Levesque et al.'s (2013) framework of access to health care are provided in **Table 1**. Importantly, all dimensions of access were addressed in either one or more of the selected cases (**Figure 1**).

## DISCUSSION

Our study illustrates how APNs practicing in different settings use eConsults to improve access to care for older adults. The framework allowed for an in-depth study of access over the range of interactions that take place among patients, caregivers, providers, and the health care system. At the center of its analysis, the framework places the actual process of seeking care experienced by the patient

TABLE 1 (CONTINUED)

### Emerging Themes from Applying Levesque et al.'s (2013) Framework of Access to Healthcare to Selected Cases

#### Health System Dimension

**Appropriateness:** The fit between services and the patient's needs.

**NPLC case:** NP provided careful assessment and diligent reporting of their patient's presenting illness, medical history, and other health-related issues that could influence treatment selection and ensure appropriate allocation of services for their patient's needs.

**Urban FHT case:** NP identified an inappropriate dosage for their patient's medication based on their comorbidities and was able to receive advice that was better suited for the patient's advanced age and other relevant medical conditions.

#### Example From Cases

**Ability to Engage:** Whether there is an opportunity for the patient's participation and involvement in decision making and treatment decisions.

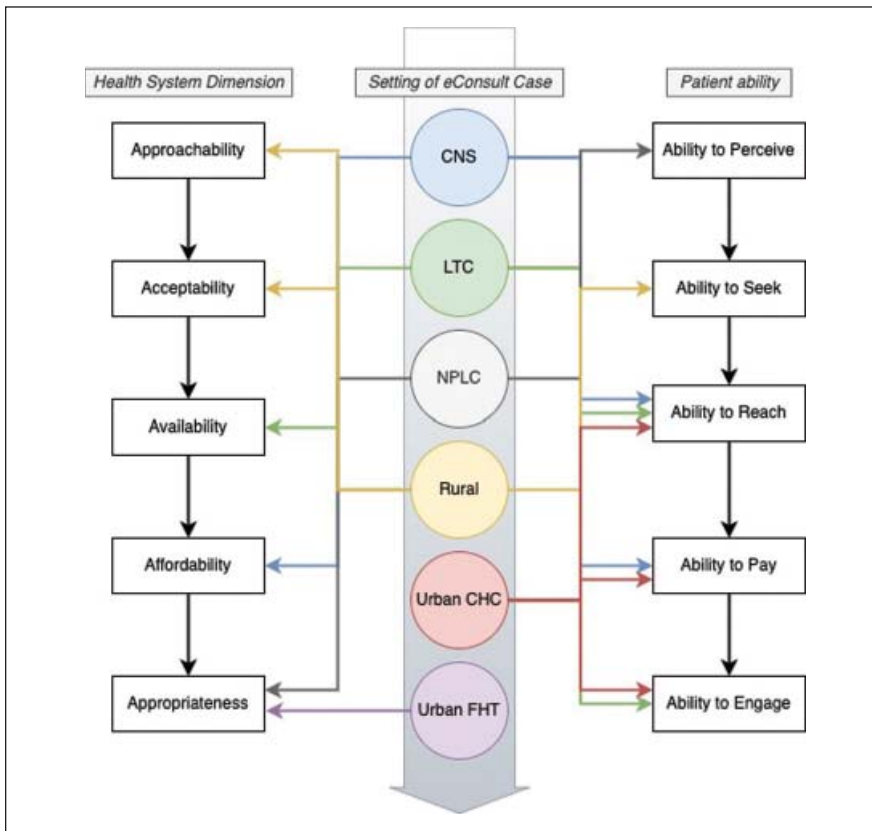
**LTC case:** NP described discussing the resident's health status and treatment recommendations with the family.

**Urban CHC case:** The NP included an interpreter in the circle of care to overcome language barriers and was able to elicit the patient's limited health literacy to explore suitable chronic disease management strategies for the patient's unique needs. NP's recognition of the patient's literacy challenges also signaled to the specialist potential barriers to the patient's ability to self-manage their chronic condition, influencing the appropriateness of the specialist's advice.

#### Patient Ability

#### Example From Cases

Note. NP = nurse practitioner; NPLC = nurse practitioner–led clinic; APN = advanced practice nurse; CNS = clinical nurse specialist; LTC = long-term care; CHC = community health center; FHT = family health team.



**Figure 1.** Health system dimension of access and corresponding patient ability addressed across selected eConsult cases from six advance practice nurse practice settings.

Note. CNS = clinical nurse specialist, LTC = long-term care, NPLC = nurse practitioner-led clinic, CHC = community health center, FHT = family health team.

(Levesque et al., 2013). Given that all dimensions of access emerged in the eConsults (**Figure 1**), each involving geriatric care provided by an APN (serving as the PCP or specialist), this is the first study to our knowledge that demonstrates how eConsults may empower APNs to promote more patient-centered care for older adults.

eConsults enable PCPs to access a wide range of specialist advice catering to their clinical question and has shown the ability to improve timely access to specialist care for aging populations (Liddy, Drosinis, et al., 2016). Key dimensions relevant to older adults seeking care emerged through our analysis. Consistent with existing literature, our analysis further exemplified that older adults face several challenges to accessing specialist care, including mobility issues and multiple chronic conditions (Davis

et al., 2011; Schoen et al., 2009). These factors mean that referrals to specialists are simultaneously more common among older populations and more onerous (Chan & Austin, 2003; Sullivan et al., 2005). *Availability*, referring to the notion that health services can be reached physically and in a timely manner, is therefore an important dimension of access in geriatric care. APNs using eConsults addressed issues related to availability (LTC case) and the limited ability of their patients to reach services (LTC, CNS, and urban CHC cases) by flagging these issues to the consulting specialist and, in certain instances, exploring alternatives to care that were more available for their patients.

The eConsult service has been implemented across a broad range of settings where APNs practice, demonstrating the flexibility of eConsults

as a tool supporting advanced practice nursing in geriatric care. FHTs and NPLCs, two settings highlighted in the case study, were originally implemented as new models of health care delivery in Ontario to improve access to primary health care and reduce the number of patients without a PCP (Koren et al., 2010). Herein we described eConsults submitted by NPs practicing from these settings to address the dimensions of approachability, availability, and appropriateness of care (**Table 1**). A larger proportion of older adults, compared to other age groups, has been reported among the clientele of NPs working in the NPLC setting (Koren et al., 2010). In the NPLC setting, barriers to access, such as transportation to appointments and accessibility to prescriptions, may hinder health care delivery (Heale et al., 2018); therefore, eConsult implementation should be a key consideration for NPs providing geriatric care from this setting. In the LTC setting, a complex environment that benefits from the addition of geriatric NPs with expanded competencies (Chavez et al., 2018; McGilton et al., 2021), NPs' use of eConsults addressed barriers to access (i.e., availability and appropriateness) (**Table 1**). The feasibility of eConsults across LTC homes in Eastern Ontario has been established and its benefits, described by FPs and NPs who use the service, include increased access to specialist advice, ease of use, reduced costs, and saved time (Helmer-Smith et al., 2020). These findings, in conjunction with the current case study, support eConsult adoption as a priority for the continued integration of the APN role in the LTC setting.

A common theme underlying the cases examined was the potential for eConsults to empower APNs to build relationships with specialists and other health care resources in their community. Inadequate mechanisms to support NPs working with vulnerable, medically complex patients in the NPLC setting have been described as a key factor negatively influencing the

delivery of care (Heale et al., 2018). eConsults can positively impact the integration of APNs within their communities by facilitating connections with a network of specialists, resulting in improved management of complex patients.

As the proportion of older adults increases across the globe, effective strategies for providing equitable access to care across diverse health care settings are needed. The cases presented herein demonstrate that APNs are effective users of eConsult, a digital health innovation with global potential (Joschko et al., 2018; Liddy, Moroz, et al., 2019). An environmental scan of eConsult services available from 17 different regions in the United States, Canada, Brazil, and Spain found that eConsult is a flexible and multifaceted solution that is well-positioned to address a wide range of access issues (Joschko et al., 2018). There is an opportunity to further expand the implementation of eConsult services in new regions by offering and promoting this tool among APNs. APNs are capable users of eConsults, as is demonstrated herein, and stand to benefit not only from the specialist advice they receive but also from the opportunity to build relationships with specialists in their region and to share their own expertise. As engaged clinical champions, APNs can help expand the adoption of eConsults to improve access to care, and ultimately, advance the well-being of older adults across different regions.

Advanced practice nursing in geriatric care has demonstrated equal or superior results for outcomes, including service use, length of stay, health indices, satisfaction, and quality of life (Chavez et al., 2018). Despite these positive outcomes and the global expansion of the APN role (Canadian Nurses Association, 2019; Grant et al., 2017), its full potential in Canada has yet to be realized, with notable barriers to its integration in the health care system (Canadian Nurses Association, 2019; Donald, Martin-Misener, et al., 2010). For example, title

confusion and lack of role clarity pose barriers to the integration of advanced practice nursing roles (Donald, Bryant-Lukosius, et al., 2010). eConsult adoption can help address this barrier by promoting a system where the role for advanced practice nursing in primary care is clearly defined. As demonstrated in the cases, APNs are effective senders and receivers of eConsults. A NP with a clinical question can consult with a wide variety of specialists to receive advice for the care of their patient, and CNSs can provide their expertise to PCPs (FPs or NPs) who consult them through the service. In this way, expanding eConsult adoption among APNs may help with their effective development and integration in the Canadian health care system. Moreover, a Canadian decision support synthesis on advanced practice nursing found that one of the most frequent and consistently identified challenges in role implementation was the nature of the working relationship between NPs and physicians (DiCenso et al., 2010). The cases presented herein show NPs using the eConsult platform to consult with an interdisciplinary group of medical professionals, including physicians and a CNS, to have rich and productive discussions about their patients' care. Therefore, beyond serving as a communication tool to seek specialist advice, eConsults may also enable effective networking and interdisciplinary collaboration for its users, and ultimately, better integration of nurses serving advanced practice roles in primary care.

### LIMITATIONS

The current study has several limitations. The case study design facilitates a detailed examination of a phenomenon at the expense of generalizability (Yin, 2009b). This limitation was addressed by selecting multiple cases from a variety of practice settings and involving two experienced APNs to help identify cases high in richness and clinical relevance. In addition, case selection was

not random; therefore, it was vulnerable to selection bias. This bias was addressed by having multiple rounds of independent review to filter the dataset using selection criteria that were discussed and finalized a priori. The basic unit of analysis for this case study was the eConsult interaction, and as a result limited insight into patient outcomes was available once the eConsult was closed. Furthermore, limited information on patients' perspectives and their perceptions of the care they received can be inferred through the provider-to-provider interaction examined. Future studies that incorporate patient interviewing into the case study design may provide better insight into how APNs' use of eConsults affects the abilities of patients to seek and obtain care.

### CONCLUSION

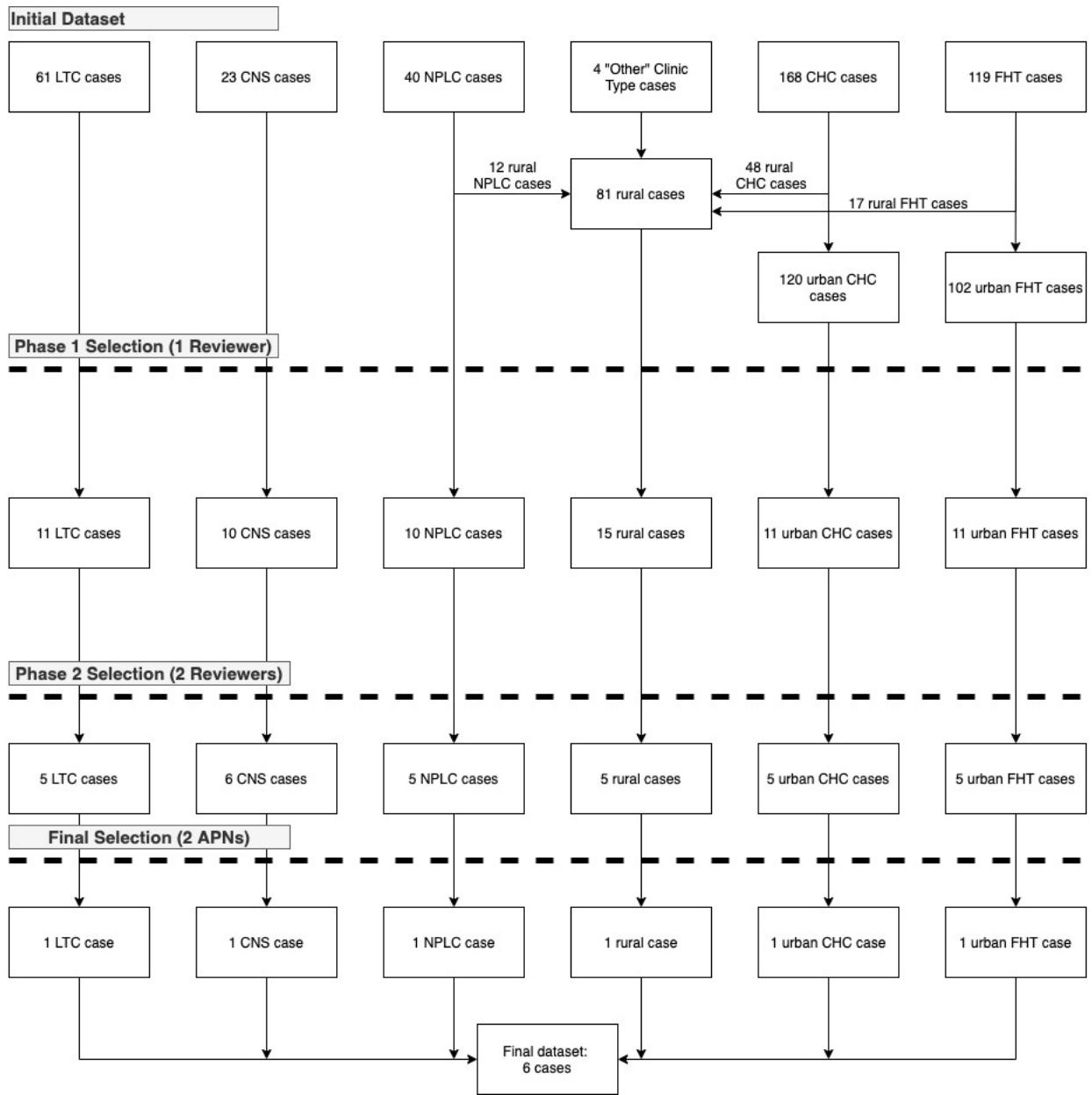
This multiple case study explored the role of APNs in a system leveraging eConsults to improve access to specialist care for older adults. APNs with an expanded scope of practice, as senders serving as the PCP and responders serving as the consulting specialist, can be effective users of eConsults in a diversity of health care settings. In the context of an aging population, eConsults can empower the advanced practice nursing profession to serve as an effective health human resource that can address the unique access issues faced by older adults in primary and specialist care.

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**Figure A.** Flow chart of data collection strategy to select final eConsult for each practice setting. Note. LTC = long-term care; CNS = clinical nurse specialist; NPLC = nurse practitioner-led clinic; CHC = community health center; FHT = family health team; APNs = advanced practice nurses.