ORIGINAL RESEARCH

Talking About Notes: Using a Design-Based Research Approach to Develop a Discharge Summary Template on a Geriatric Inpatient Unit

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ABSTRACT

Background

Discharge summaries are important educational tools, guiding trainees in their collection and documentation of data. As geriatric competencies are integrated in medical curricula, documentation on in-patient geriatric rotations should represent the unique care and education provided, yet often follow generic templates. What content should be included in a geriatric discharge summary has not previously been explored and was the purpose of this study.

Methods

A mixed-methods, designed-based research approach was used to assess note quality on a geriatric in-patient unit and iteratively co-develop a template with examples through three phases: 1) needs assessment, 2) consensus building, and 3) template development.

Results

Sixty-eight discharge summaries were assessed by five geriatricians, with 14 gaps identified. Many of these reflected elements that were present but addressed generically without attention to the specificity required from a geriatric perspective. In response, the team developed a geriatric-specific template with explicit examples. Through the consensus process three barriers to quality notes and trainee education were identified: the chronic state of low-quality notes being accepted as the norm, time limitations due to the high volume of patients, and high volume of clinical documents.

Conclusions

The identification of gaps in geriatric discharge summaries allowed for the co-development of an instructional template and examples that goes beyond simple headings and highlights the importance of applying and documenting geriatric competencies. Although we encourage others to take up and modify the tools for trainees in their local context, more importantly, we encourage them to take up the dialogue about note quality.

Key words: discharge summary, clinical documentation, geriatric competencies, design-based research

INTRODUCTION

In education settings, clinical documents such as discharge summaries serve not only to represent the care that was provided, but also to guide trainees in their provision of care. In the geriatric context, this means guiding them to attend to core geriatric competencies. To date, while the core geriatric competencies have been well-defined,[1-4] trainees continue to demonstrate gaps in knowledge and the application of these skills as demonstrated by things like failing to complete and document cognitive or functional assessments, fall risk or advance directives in the chart or discharge summary of their older patients.[5] Currently, it is not known what geriatric components (when missing from clinical documents such as discharge summaries) impact the quality of the note, and what challenges there are to addressing these gaps. With this knowledge, tools can be developed to help trainees focus on these geriatric competencies and their documentation when caring for older adults.

Clinical documents, as repeated patterns of communication, can be used to help trainees recognize and attend to what is important.[6] Rhetorical genre theory (RGT) provides a useful lens through which to study the genres of communication practices and the social actions they achieve.[7] In in-patient medicine, clinical documentation genres such as the discharge summary have an impact on patient care, but also on trainees'

learning.[8] Genres play an essential role in the socialization of trainees to medicine, guiding how they speak, behave, and think.[6] Although experienced clinicians understand that genres are context-specific and flexible means of communication, trainees tend to view them as rule-based activities defined by a specific structure. This rigid view of genres means that a context-specific adjustment by an experienced clinician, such as asking the trainee to skip the social history when presenting an acutely ill patient, can be interpreted by the trainee as the social history not being important.[9] Genres, therefore, not only guide trainees' documentation and actions of data collection, but also teach them what is considered important by experts in the field.

With the aging population and a limited number of geriatricians, there has been an increasing emphasis on the integration of geriatric competencies in medical curricula at the undergraduate and postgraduate levels across specialties.[1-4,10] Despite the dissemination of these competencies, there is evidence that trainees still inconsistently apply and document geriatric assessments.[5] Proposed solutions to improving trainees' competence in caring for older adults often include geriatric curricular innovations and geriatric rotations, as these offer evidence of improved knowledge and attitudes.[11,12] Yet, anecdotally, even on dedicated geriatric inpatient rotations the documentation of geriatric competencies is lacking. At this time, the components that should be included in documentation on geriatric inpatient units have not been adequately addressed.

In this study, we assessed the quality of discharge summaries on a geriatric medicine in-patient unit and identified key content that was missing or could be improved. A design-based research (DBR) approach informed by RGT was used to collaboratively develop a discharge summary template and examples that better represent the geriatric-specific teaching and care that occurs on a geriatric unit.

METHODS

Study Design

To develop educational tools with a team of geriatricians, a DBR approach was used. DBR is a mixed-methods approach optimal for testing theories and designs within an authentic workplace-based learning environment.[13] In the case of this study, the assessment of the quality of discharge summaries on a geriatric inpatient unit and the collaborative development of a template was completed through the following three phases: 1) needs assessment, 2) consensus building, and 3) template development. RGT was used to inform all three phases. This study met the criteria as a quality improvement project using the Alberta Research Ethics Community Consensus Initiative (ARECCI) Ethics Screening Tool developed by the ARECCI Network with a score of 1 (indicating minimal risk).[14]

Setting

The assessment of the current state of discharge summaries and development of the template took place on an Acute Care of the Elderly (ACE) unit at a tertiary academic centre in Ontario, Canada. The ACE unit is an internal medicine clinical teaching unit for patients 70 years of age and older, supervised by six geriatricians, including researcher AB. The majority of direct patient care is provided by junior trainees including third- and fourth-year medical students, first-year internal medicine residents, and off-service residents. During each four-week block there are 9–10 new junior trainees who rotate on ACE. Junior trainees do most of the dictations and, therefore, were the targets for a dictation template. The consultant on ACE reviews all clinical documentation on the electronic medical record (EMR) with an opportunity to edit notes before signing them. For this study, both the original (unedited) and edited notes were available for assessment through the EMR.

Phase 1: Needs Assessment

In Phase 1, an assessment of the current state of ACE discharge summary quality was completed. The study was introduced at a consultant meeting with all six geriatricians who supervise on the ACE unit invited to participate. One geriatrician, due to scheduling and access to notes, participated in all meetings but only reviewed one note. Another geriatrician, due to competing demands, was unable to participate. The geriatricians were asked to purposively select 2–3 notes per week that different junior trainees created for patients whose length of stay was greater than 48 hours. This purposive sampling allowed for the identification of a range of quality of notes and was chosen to help ensure diversity across the multiple trainees over time. The geriatricians rated the notes on overall and geriatric content using an online data collection form with space for qualitative comments.

In total 68 discharge summaries completed by junior trainees were evaluated by five geriatricians, including researcher AB, between October 2020 and May 2021. As this period was during the middle eight months of the academic year, assessed notes were from trainees at both the earlier and later stages of the year, allowing for a range of clinical experience and interest in geriatric medicine. The number of notes assessed by each geriatrician was 1, 9, 11, 19, and 28. Although the study period overlapped with the coronavirus pandemic, patients diagnosed with COVID-19 were not admitted to the ACE unit, so the case variety did not change during that time. During the study period, the average number of discharges per month was 101, comparable to the annual averages in 2018-19, 2019-20, and 2020-21 (averages of 91, 93, and 91 discharges per month, respectively).

Phase 2: Consensus Building

Expecting that participants may assess quality differently,[15] particularly with no standardized training on the assessment process, in Phase 2 we had a second reviewer (researcher AB) assess the notes. Since in DBR the purpose is not inter-rater reliability but rather gaining insights into the process and learning environment, a consensus-building approach was used to re-assess the quality of the notes. First, the research

team, which also included an experienced clinician-educator and researcher with expertise in rhetorical genre theory (MG), met twice to review a random selection of notes. Next, researcher AB met with each geriatrician to review the notes where there was a discrepancy between the first and second ratings. The note, changes made during editing, qualitative comments, and assessment of quality were discussed for each discharge summary, with a final rating on the overall and geriatric content agreed upon. Researcher AB used the insights gained through the process to similarly re-assess her own notes. Through this consensus-building process, a list of gaps impacting the quality of the discharge summaries on ACE was created. Researcher AB then completed a third review of the notes to identify the frequency of these gaps.

Phase 3: Template Development

Following the consensus-building process, the components identified as essential in a high-quality geriatric discharge summary were used in the template development process. Building on the existing literature and examples from acute care and geriatric rehabilitation settings, the research team developed the initial discharge summary template.[16-20] Worked examples of excellent quality discharge summaries were also developed to highlight common geriatric presentations and illustrate what should be included in each section. The template and worked examples were shared with all six of the ACE consultants by email, and feedback was incorporated. The design process involved iterative changes until the consultant team agreed upon final versions.

RESULTS

Through the DBR process, we were able to identify multiple gaps in the geriatric discharge summaries and a strategy for addressing them through a new clinical documentation template. In addition, through the consensus-building process, insights were gained into how faculty judge quality and the challenges to improving the quality of clinical documentation and the provision of feedback to trainees.

Gaps in Geriatric Discharge Summaries

As shown in Table 1, there were 14 gaps identified in the ACE discharge summaries that were consistently found across the 68 discharge summaries reviewed. While many of these can be considered essential components in any discharge summary, in the context of geriatrics, not only was the category important, but the nuance of how to document in that category was critical. Select examples are included in Table 2 to illustrate the difference when the social context, mobility status or discharge supports are elaborated upon using a geriatric lens.

TABLE 1.
Discharge summary gaps impacting quality (n = 68)

Discharge Summary Components	*Present n (%)*	*Inadequately Represented n (%)*	*Omitted n (%)*	*Not Applicable n (%)*
Patient Identification				
Home setting	39 (57.4)	0	29 (42.6)	0
Home social context	22 (32.4)	0	38 (55.9)	8 (11.8)
Active Problems in Hospital				
Active problem list including geriatric syndromes	29 (42.6)	30 (44.1)	9 (13.2)	0
Course in Hospital				
Problem-oriented	30 (44.1)	0	38 (55.9)	0
Quantitative data (e.g., weight)	43(63.2)	0	25 (36.8)	0
Goals of care and treatment discussions	14 (20.6)	0	54 (79.4)	0
Education provided to patient and/or caregiver(s)	17 (25)	0	51 (75)	0
Mobility status at discharge	7 (10.3)	23 (33.8)	38 (55.9)	0
Cognitive status at discharge	3 (4.4)	9 (13.2)	56 (82.4)	0
Reconciled Discharge Medication List				
New medications highlighted	39 (57.4)	2 (2.9)	11 (16.2)	16 (23.5)
Rationale for medication changes	9 (13.2)	5 (7.4)	40 (58.8)	14 (20.6)
Medications deprescribed or held	29 (42.6)	5 (7.4)	6 (8.8)	28 (41.2)
Recommendations & Follow-up				
Discharge setting	29 (42.6)	0	39 (57.4)	0
Discharge supports & equipment	10 (14.7)	12 (17.6)	44 (64.7)	2 (2.9)

TABLE 2.
Select examples of gaps to illustrate the nuance of geriatric content required

Gaps	*Examples from Notes*	*Preferred Approach*[a]
	Patient Identification	
Home setting and social context omitted or inadequately represented	[Patient] is an 80-year-old gentleman who presented with a 5-day history of fever, dysuria, nausea, and vomiting as well as a 3-month history of hematuria.	[Patient] is an 80-year-old man presenting with a 5-day history of fever, dysuria, nausea, and vomiting as well as a 3-month history of hematuria. He lives in an apartment alone and has previously declined home care supports. His daughter is his only support and lives out of province.
	[Patient] is an 84-year-old woman from home with roommate, admitted post fall with rhabdomyolysis.	[Patient] is an 84-year-old woman from a two-storey house with her roommate who is her main caregiver, presenting with a fall and rhabdomyolysis.
	Course in Hospital	
Mobility status at discharge omitted or inadequately represented	Mobility was poor at time of admission, but quickly improved following two overnight stays. Currently, at the time of discharge, [Patient] is back at baseline.	At baseline [Patient] was ambulating independently using a rollator walker. Initially requiring assistance for transfers, at time of discharge he was independent for transfers and mobilizing 30 m using a rollator walker.
	She had begun to mobilize with Physiotherapy by [date] and application to the Geriatric Rehabilitation Unit was initiated	At baseline, [Patient] mobilized independently without the use of a gait aid. At time of transfer to the Geriatric Rehabilitation Unit she was requiring an assist of 1 to transfer from bed to chair and could only mobilize a few steps with assistance and a rollator walker due to pain.
	Recommendations & Follow-up	
Discharge setting, supports and equipment not mentioned	Not addressed	Given [Patient]'s functional limitations due to the non-weight bearing status of her arm, she was discharged with intensive support back to her single-level home where she lives alone. She has consented to the bundled care support program which includes personal support workers, occupational therapy and physical therapy. She has also been provided information about housekeeping by our social worker.

[a]Preferred approach developed based on review of existing edits and group consensus.

Template Development

Building upon the key discharge summary components and what geriatric content trainees should be attending to, a quick guide (Table 3) and the discharge summary template (Appendix A) were developed. Additionally, as our results identified that we must address what should be included within a generic heading for a discharge summary to capture geriatric content, we developed two worked examples as teaching tools (Appendix B).

Other Findings From the Consensus Building Process

Three dominant barriers to high-quality geriatric discharge summaries were identified. The first barrier was the chronic state of inadequately captured geriatric content in notes being accepted as the norm. As shown in Table 4, before the consensus-building process, the five geriatricians were more lenient in their assessment of quality. They explained that this was likely due to their perceiving that anything better than the norm was excellent. Through the consensus-building process, discussions with faculty highlighted that we had not thoughtfully paused to ask what an excellent geriatric discharge summary looked like. We also had little knowledge of how our colleagues viewed and assessed note quality. Going through this process changed how we discussed and assessed discharge summary quality.

Additionally, two other barriers to ensuring and consistently achieving high-quality notes were identified. These included time limitations due to the high volume of patients and the number of notes that came through the EMR to be signed. Both factors resulted in geriatricians having to prioritize which document type to invest time in, with the emphasis on discharge summaries impacting other clinical documents. Daily progress notes were often not reviewed at all, but simply signed. Admission notes were only edited when there were significant errors. Even then, geriatricians found they did not have adequate time to spend on discharge summaries, particularly with the hospital requirements that they are signed within 48 hours to align with provincial policies.[21]

These barriers to quality discharge summaries were also noted to impact the feedback geriatricians provided to trainees on their clinical documents. The blind spot developed by faculty on the chronic state of inadequacies in capturing geriatric content in discharge summaries limited the emphasis on quality and feedback while teaching and supervising trainees. Heavy clinical demands restricted the time available for feedback with trainees. The pressure felt by geriatricians to sign discharges promptly also resulted in trainees rarely

having the opportunity to review and edit their notes. If the note needed editing, geriatricians often did this rather than providing feedback to the trainees and having them learn to edit it themselves. During the consensus-building process, the faculty acknowledged the important educational consequences of our current practices.

DISCUSSION

Confirming the findings of Bynum and others, we identified that trainees on a geriatric medicine inpatient unit were not documenting the geriatric competencies that are supposed to be integrated into the undergraduate and postgraduate medical education curricula.[1,4,5,22] We recognized 14 discharge summary components where the nuance of geriatric content was omitted or inadequately elaborated upon, and co-developed a geriatric discharge summary template and examples built on the existing literature and best practices to help address the gaps. Through the DBR process and informed by rhetorical genre theory, we characterized the challenges of ensuring notes are high-quality, and reflected on opportunities to change our approach to discharge summaries and teaching around clinical documentation.

Our findings of key content gaps in the existing documentation both mirror and add to the literature related to discharge summaries. Even in the non-geriatric setting, despite consensus guidelines on what should be included in a generic discharge summary[20] and accessible guides on how to

TABLE 3.
ACE discharge summary template: quick guide

Sections	*Key content*
Patient Identification	Home setting and social context (who lives with them and supports)
Most Responsible Diagnosis	
Active Problems in Hospital	Acute new medical issues Geriatric syndromes Psychiatric diagnoses Other chronic active issues requiring management or monitoring in hospital
Past Medical/Surgical History	For chronic active conditions, be sure to indicate who follows it and if it is optimally managed?
Course in Hospital	Problem-oriented (list from above) For each problem, include a synopsis of presentation, course in hospital, relevant investigations and pertinent findings at discharge (ie. weight, blood pressure) Include mobility at discharge (as described in allied health notes) if presenting with a geriatric syndrome such as frailty or falls Include results of family meetings, goals of care and other important discussions
Summary of Investigations	Can alternatively be included with relevant problems above
Discharge Medications Medications Held Medications Discontinued	Highlight changes to medications Identify those held or discontinued/deprescribed and why Indicate plans for re-assessment of medications on hold
Recommendations & Follow-up	For each problem, outline the management and follow up plan Include discharge setting, supports/equipment arranged and mobility status (if relevant) Highlight any pending results or investigations and who will follow-up on these

TABLE 4.
Assessment of note quality (n = 68)

Overall Content	*Geriatric Content*	*Before Consensus n (%)*	*After Consensus n (%)*
Excellent	Excellent	5 (7.4)	2 (2.9)
	Adequate	13 (19.1)	5 (7.4)
	Inadequate	0	2 (2.9)
Adequate	Excellent	1 (1.5)	1 (1.5)
	Adequate	29 (42.6)	23 (33.8)
	Inadequate	5 (7.4)	16 (23.5)
Inadequate	Excellent	0	0
	Adequate	0	0
	Inadequate	15 (22.1)	19 (27.9)

complete them,[16] a major limitation to high quality notes continues to be missing and inaccurate information.[23,24] This finding was mirrored in our study; although trainees typically included the requisite component headings, the content and geriatric-specific thinking within the section were often inadequate. For example, the discharge medication list is viewed as the most important discharge summary component for primary care practitioners.[17] However, in practice, medication lists are a common source of error and frequently lack the rationale for medication changes.[25,26] This was also a finding of our study; nearly 60% of the discharge summaries had no rationale for medication changes. Additionally, very few explicitly addressed deprescribing— a core geriatric competency.[22,27] We therefore suggest that a template with only a list of discharge summary headings does not provide adequate guidance. Trainees need to understand the context-specific details to be addressed and subsequently documented when caring for older adults.

According to rhetorical genre theory, clinical documentation can play a pivotal role in guiding medical trainees to think like a physician.[6] As experienced faculty, we can flexibly include data on one patient that may not be relevant for another. However, trainees look for rules on how we, as physicians, communicate and what we view as important.[6,8] The developed template and examples can therefore guide trainees not only in their documentation, but also in their collection of information.[6] Looking to the literature, template implementation has been shown to result in changes in the content and quality of discharge summaries.[15] By providing a geriatric discharge summary template, we highlight to trainees what content we value, to improve the genre in both its educational and clinical functions.

Limitations

None of the trainees were aware of the project and, therefore, would have been unlikely to modify their approach to notes during the study period. However, consistent with DBR, faculty were actively participating in the study and likely modified their practice throughout. While that may be a limitation if our purpose was to account for all of the quality gaps over time, that was not the purpose of this study. It therefore likely had minimal effect on the findings, which robustly summarized challenges in the quality of clinical notes.

Although it might be tempting for those taking up our findings to simply implement our template and examples, we would argue against solely taking this approach. In DBR, the goal is to not only share the designed product, but to also share lessons learned in the design process.[28] Moreover, while the transferability of our tools is good in principle, in practice, the context-specific features are also important; in our study, we designed our tools in the context of an ACE unit with well-defined interdisciplinary care components[29,30] that are also commonly found on internal medicine wards.[31,32] We therefore encourage others to use and modify the tools to meet their local context. We also encourage them to learn from our process and take up the dialogue around the quality of notes as an essential first step in recognizing and addressing local barriers to improving note quality. These reflections on practice were probably the most important component of the DBR process for our group.

CONCLUSION

In this study, using a DBR approach to analyze existing documentation and identify key gaps, we iteratively co-designed a geriatric discharge summary template and examples. Here we have shared the design process, lessons learned, and the clinical and educational tools that were the products of this study. As a next step, we plan to explore how sharing the template and worked examples influences the quality of the discharge summaries on the ACE unit, and how trainees attend to these geriatric issues while the patient is in hospital. Looking for the uptake of the change in genre into the admission or progress notes, or even into trainees' future rotations, could confirm the role of templates in learning.

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CONFLICT OF INTEREST DISCLOSURES

We have read and understood the *Canadian Geriatrics Journal*'s policy on conflicts of interest disclosure and declare we have none.

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APPENDIX A. ACE discharge summary template

Dictating 101

Prior to Dictating:

- ☐ Be sure that you are clear on the discharge plans for the patient (you may need to discuss these with the senior prior to dictating your note).
- ☐ Make a list of all the names of physicians who should receive a copy of this note (attending, family physician, any specialists who were involved in their care while they were in hospital or who follow them on an outpatient basis). Also include a copy to places like their nursing home.
- ☐ Find a quiet place to dictate
- ☐ Remind yourself to "speak slowly" and spell key words (esp. physician last names, drug names and doses etc.)

Starting your Dictation:

- ☐ Identify self, role, date, patient name, PIN # and their D.O.B.:
  "this is John Smith PGY1 dictating for Dr. _____ on April 1st 2020. This is a dictation on Mr. John Doe, PIN # 1234567, DOB 05/01/35)".
- ☐ Identify all physicians who should receive a copy of the D/C summary. Be sure to include their **first name/initial as well as their last name!**
- ☐ Also indicate:
  Date of Admission:
  Date of Discharge:

Formatting Tips:
– When dictating headings, say "new heading" and it will be bolded
– When making a list, say "in list format, first bullet.. next bullet.."

ACE Discharge Summary Format

I. Patient Identification

Include age, where the patient is presenting from and with what supports.
Mr. Doe is a 86 y.o who was admitted from a single-level home where he lives with his wife

II. Most Responsible Diagnosis

III. Active Problems in Hospital

(1)Falls 2) Delirium 3) CHF etc.)
Note: This is not all past medical problems, only active ones. It may include **geriatric issues** (such as deconditioning, malnutrition, urinary retention, constipation, caregiver stress, disposition issues and needs for more home supports), **psychiatric issues** and **complications arising in hospital** etc.

IV. Past Medical/Surgical History

Include a full list of their past history. Some of these may be the same as the active problems.

V. Course in Hospital

RE _____
(A.K.A. History of Active Problems dealt with in hospital) For this series of sections, start with most important active issue (usually same as "most responsible diagnosis"). Be sure to dictate new headings for each one:

*New paragraph "***RE: Falls***" new line…*

For each **Active Problem** be sure to include:

- Baseline data about this problem (if it is a chronic active issue e.g. COPD)
- Synopsis of original presentation including only pertinent +ves and –ves from the history, physical and investigations. (**Complete history and physical does not belong here!**)
- Course in hospital for that problem including status and pertinent physical findings at time of D/C such as **dry weight if CHF dx**. Also include results of any consultations or relevant results (labs, echo, CT, PFT etc.).
- **Note:** If a patient presented with a geriatric syndrome such as falls, **outline their mobility status as described in PT notes** ("returned to baseline mobility" is not adequate)

VI. Summary of Investigations (optional)

Only include major investigations like echos, CTs, blood cultures etc.

VII. Discharge Medications:

Goal is to have one list of active meds that clarifies how they have changed since admission. Always include medication dose and frequency. Only include Prn's they will be using at home.

1. Metoprolol 25 mg bid (increased from 12.5 mg bid)

2. Furosemide 20 mg bid (decreased from 40 mg bid)

3. Plavix 75mg OD (new) ...

VIII. Medications Held:

List medications that have been suspended, the reason and suggestions for re-assessment

IX. Medications Discontinued:

List medications that have been deprescribed with the rationale

Notes on Medications:
- Do not include a separate list of admission meds.
- Do mention drug allergies (including the reaction type).
- Have questions about the meds? Ask your team before dictating!

X. Recommendations & Follow-up:

Intro sentence with **where** the patient is being discharged, with **what supports** and their **mobility status (if relevant, ie. for those admitted with falls)**

Mr. Doe is an 86 year old being discharged back to his single-level home with his wife and PSW supports through the LHIN. He requires supervision for transfers and is independent for mobility using his rollator walker.

For each problem, give it its own section and go in the same order you used above.

1. RE Delirium:
2. RE CHF:

For each, be sure to clarify:

- What the problem is:
  - Diagnosis, severity and prognosis (if relevant)
- Plans for managing problem:
  - Current therapies
  - Planned therapies
  - Planned/Pending investigations
  - What has been discussed with the patient/family (Goals of Care, resuming activities, lifestyle changes, monitoring issues (sugars, daily weights etc.) and prognosis
  - Who will provide follow-up, what they will be doing and why for example:
  - *"Because of the risk of hyperkalemia and worsening renal dysfunction, we ask the family doctor to **re-check electrolytes in two weeks***"

APPENDIX B. ACE discharge summary examples

DISCHARGE SUMMARY (Verified)
cc: Family Doctor
Specialist 1 etc.

DATE OF ADMISSION: Date DATE OF DISCHARGE: Date

PATIENT IDENTIFICATION: Mrs Mu is a 90-year-old female from home with her son and granddaughter who initially presented with fever NYD as well as shortness of breath.

MOST RESPONSIBLE DIAGNOSIS: Right lower lobe pneumonia.

ACTIVE PROBLEMS IN HOSPITAL:
1. Hypoxemia, likely due to the right lower lobe pneumonia.
2. Hypotension on a background of HTN.
3. Mobility.
4. Delirium.
5. Eye infection.
6. Right lower lobe lung nodule.

PAST MEDICAL HISTORY:
1. MCA stroke June 22, 2020 with left sided weakness and neglect.
   a. Etiology is ESUS versus small vessel disease
   b. Was in Parkwood for rehab
2. MCV in 1973 with patient suffered from posttraumatic seizures. No history of seizure in the last 10 years.
3. Hypertension.
4. Dyslipidemia
5. Osteoarthritis.
6. Hiatal hernia.
7. Right cataract surgery.

COURSE IN HOSPITAL:
Pneumonia: At baseline, Mrs Mu is not on any oxygen, has no history of COPD or asthma, but does have a history of smoking approximately 1 pack of cigarettes per week, last smoking in 1983. On admission to the hospital, she was short of breath and was febrile. CT chest showed no PE, but showed a right lower lobe pneumonia as well as a nodule in the right lower lobe. She was given 1 dose of levofloxacin by the Emergency Department. She was also swabbed for COVID, but was negative. She was switched to ceftriaxone, and stepped down cefuroxime 500 mg b.i.d., which is to be stopped on date after a 7-day course. During her hospital stay, she had difficulty weaning off oxygen. The day before discharge, she developed a one-time, low-grade fever of 38.0 degrees Celsius, which was investigated with chest x-ray which showed no gross changes from previous chest x-ray, and there was no other clinical suggestion of infection. At discharge, she was able to achieve an oxygen saturation up to 100% while lying in bed without oxygen.

Hypotension: During her stay, she was consistently hypotensive or normotensive and initially received several fluid boluses. Her Perindopril was suspended due to hypotension and was not restarted because all of her BPs were below 120 systolic.

Mobility: At baseline, she ambulated independently with a cane. She was seen by PT and OT during her stay to help with mobilization. At time of discharge she was transferring independently and ambulating independently with a rollator walker for over 20m. Delivery of a rollator walker has been arranged and both PT and OT will be seeing her in the community.

Delirium: She has no dementia at baseline, but does have history of stroke. The family did state that she has a history of becoming confused in hospital. Throughout her hospital stay, she had fluctuating mentation with agitation, meeting the criteria for hyperactive delirium. Quetiapine was used to manage agitation. It was thought that infection and being in the hospital may have contributed to her delirium. Her amitriptyline was discontinued due to anticholinergic effects. At time of discharge, she was oriented to person and place, but was still slightly off baseline. It was felt that being in her home environment would help with her return to baseline.

Left eye inflammation: Two days prior to admission, she developed crusting and erythema around her eye. She also had periorbital redness on the eye with some crusting and discharge on the eyelashes. She was placed on erythromycin drops q.i.d. for 5 days, which cleared any signs of infection.

Lung nodule: She was found to have a lung nodule of her right lower lobe. This was explained to her and her family that it may be due to an infectious cause or may be a change in the lung parenchyma or may be a signal that there may be an underlying malignancy. A repeat CT scan in 3 months is recommended.

DISCHARGE MEDICATIONS:
1. Quetiapine 25 mg oral 2 times daily **(new, for hyperactive delirium, to be deprescribed as delirium clears)**
2. ASA 81 mg daily.
3. Atorvastatin 40 mg oral daily
4. Clobazam 10 mg oral daily at bedtime.
5. Cyanocobalamin 500 mcg oral daily.
6. Pantoprazole 40 mg oral BID
7. Cefuroxime 500 mg BID **(to complete a 7 day course ending on Date)**

SUSPENDED MEDICATIONS:
1. Perindopril 4 mg oral daily (due to persistent hypotension in hospital)

DISCONTINUED MEDICATIONS:
1. Amitriptyline 20 mg oral daily with supper (deprescribed due to anticholinergic side effects)

RECOMMENDATIONS AND FOLLOW-UP PLANS:
Mrs Mu is being discharged back to her home with her son and granddaughter.

1. **Pneumonia:** This has fully resolved. There is no need for follow-up CXR. She has 2 days of antibiotics to complete
2. **HTN:** At baseline she has HTN. Throughout her stay we have held her Perindopril 4 mg oral daily. We have asked her to see her family physician in 1-2 weeks to reassess and we have notified her Family Physician who has also agreed with this plan
3. **Delirium:** The patient did improve but was not back to her baseline cognition at time of discharge, as the environment was still a likely contributor. We ask that her family physician follow up on her delirium symptoms and deprescribe the quetiapine as symptoms resolve. This should not be required long term.
4. **Lung nodule:** As noted above, a CT scan has been ordered with results cc'd to her family physician. We have contacted their office and they have agreed to follow-up with her and her family on the results.
5. **Mobility:** Mrs Mu is now transferring independently and mobilizing with a rollator walker. Delivery of a walker has been arranged for day of discharge and a referral made for PT and OT to see her in the community for an at home assessment and ongoing support.

Should there be any questions arising from this Discharge Summary, please do not hesitate to contact Dr. Attending Physician.

Name

Clinical Clerk for,
Dr Name

DISCHARGE SUMMARY (Verified)
cc: Family Doctor
Specialist 1
Specialist 2 etc.

DATE OF ADMISSION: Date DATE OF DISCHARGE: Date

PATIENT IDENTIFICATION: Mr D is a 78-year-old male from an apartment alone. He initially presented with confusion, falls and decline in function.

MOST RESPONSIBLE DIAGNOSIS: Progressive dementia

ACTIVE PROBLEMS IN HOSPITAL:
1. Falls
2. Oropharyngeal dysphagia
3. Weight loss
4. Caregiver burnout
5. Osteoporosis with previous fragility fracture

PAST MEDICAL HISTORY:
1. Dementia, probable Alzheimer's diagnosed 3 years ago and started on donepezil, with MoCA 15/30
2. Depression
3. R femoral neck fracture 6 months ago managed with bipolar hemiarthroplasty
4. Hypertension
5. BPH
6. Bilateral lacunar infarcts

COURSE IN HOSPITAL:
Progressive dementia: Mr D was diagnosed with dementia three years ago and started on donepezil by his family physician. His son and daughter describe significant worsening in the last 6 months, first after his hip fracture and surgery, and then again more recently in the last month. He was now having difficulty remembering to take his medications, and had left the stove burner on a few times. Before admission his children were coming into the apartment twice daily to help him. There were no other supports in place. In hospital, there was no evidence of delirium. With his weight loss, his donepezil was discontinued in discussion with his children. There were no observed behaviours in hospital. Due to his difficulty with managing IADLs at home, a family meeting was held to discuss the best disposition plan for Mr D. He and his children were interested in a retirement home that could provide more support, and an application was completed for a memory care ward where a bed was available.

Falls: At baseline the patient was not using a gait aid and had experienced at least 3 falls over the past 6 months, with one resulting in the femoral neck fracture. The circumstances of these falls were unclear, as they were unwitnessed. A cardiac workup was unremarkable with normal echo and telemetry. Orthostatic vitals were done on admission with a drop in systolic BP of 20 mmHg and amlodipine was held. The patient's prior strokes and diagnosis of dementia were also likely contributors to falls. PT and OT followed Mr D through his hospital stay and at the time of discharge he was able to transfer independently and ambulate independently with a rollator walker for 100m. The physiotherapists noted that he could be impulsive at times, and was still at risk of falls.

Oropharyngeal dysphagia: At baseline the patient's family had noted intermittent episodes of coughing with food and thin fluids. SLP was involved and identified moderate oropharyngeal dysphagia which was felt to be related to the patient's progressing dementia and prior strokes identified on CT imaging. A discussion was held with the patient's POAs (his son and daughter) to outline the risks of aspiration. They felt that their father would not want invasive measures such as enteral feeding and opted to trial a modified diet, accepting that there may still be a risk of aspiration. Mr D tolerated the honey-thick fluids well and will continue this in the retirement home.

Weight loss: Over the past 6 months Mr D has lost approximately 7 kg. He was assessed by the dietician who found that his oral intake at home was likely inadequate. With the patient's poor appetite, the risks vs. benefits of donepezil were discussed with his POAs and the decision was made to stop. At the time of discharge the patient's weight was 82 kg.

Caregiver burnout: The patient's children were visiting twice daily, helping him with meals and cuing him for medications and bathing. They noted that over the last few months he was more irritable with their reminders, and they described frustration in their interactions. Both are also caring for their own small children. Educational resources were provided to the patient's children to help with communication techniques. A referral to the Alzheimer's society for continued social work support will also be made.

Osteoporosis with previous fragility fracture: In reviewing Mr D's chart it was identified that he has a diagnosis of osteoporosis due to the recent fragility fracture. Vitam D level was low, with other screening bloodwork including PTH and calcium normal. He was started on vitamin D supplementation and will require an outpatient bone mineral density scan and anti-resorptive therapy with denosumab.

DISCHARGE MEDICATIONS:
1. ASA 81 mg daily.
2. Atorvastatin 20 mg oral daily
3. Tamsulosin 0.4 mg oral at bedtime **(changed from AM dosing to reduce orthostasis)**
4. Escitalopram 10 mg oral daily
5. Cholecalciferol 2000 units oral daily **(new for osteoporosis)**

SUSPENDED MEDICATIONS:
1. Amlodipine 10 mg oral daily (due to orthostatic hypotension in hospital)

DISCONTINUED MEDICATIONS:
1. Donepezil 5 mg oral daily (discontinued due to weight loss and poor appetite)

RECOMMENDATIONS AND FOLLOW-UP PLANS:
Mr D has been accepted to the memory ward of a retirement home where he will receive his meals and have his medications administered.

1. **Progressive dementia:** The patient is moving into a memory care ward at a retirement home where he will have support for IADLs and further support for personal care can be added as his dementia progresses.
2. **Falls:** Mr D was ambulating independently with a rollator walker at time of discharge. A home OT and PT assessment will be arranged to further reduce falls risk and assess the home environment.
3. **Oropharyngeal dysphagia:** In discussion with the medical team and SLP the patient's POAs decided to accept the risk of aspiration as their father would not want enteral feeding. He was tolerating honey-thick fluids at time of discharge and his dietary needs have been communicated with the retirement home.
4. **Weight loss:** The patient's dementia, dysphagia and poor appetite were all likely contributing to his weight loss. Donepezil was discontinued and he will now be receiving his meals and supplements through the retirement home. We ask the patient's family physician to monitor his weight.
5. **Caregiver burnout:** The patient's children were supporting him in his apartment which was becoming increasingly difficult. He is now moving into a more supportive environment. Referral has also been made to the Alzheimer's Society for further education and support.
6. **Osteoporosis with previous fragility fracture:** The patient has been started on vitamin D supplementation as the level was low. We ask that his family physician arrange for a BMD if not recently done, check a 25-Vitamin D level in 3 months and initiate anti-resorptive therapy with denosumab. He would not be a candidate for an oral bisphosphonate due to his dysphagia.

Should there be any questions, please do not hesitate to contact Dr. Attending Physician.

Name
Clinical Clerk for,
Dr Name