

Table 1 - Co-morbidities, event description, outcomes, and contributing causes for 27 cases (Falls=13; Medication=14) analysed using the Vincent London Framework of Risk Management

Case	Age (yo)	Gender	Care management problems	Clinical context and patient factors	Specific contributory factors	General contributory factors
F - 1	70	F	<ul style="list-style-type: none"> 'Rollator' walker did not fit in bathroom 	<ul style="list-style-type: none"> Increased weakness 	<p>Environment Factor - Size of rollator</p> <p>Patient Factor - increased weakness</p>	<p>Environment Factor - Size of rollator</p>
F - 2	90	F	<ul style="list-style-type: none"> 2.5 hour delay in accessing client who did not respond to door 	<ul style="list-style-type: none"> Unwitnessed fall - client not able to provide details. Left greater trochanteric fracture identified not requiring surgery. "...very coherent and sharp" in ED. 	<p>Patient Factor - History of frequent falls</p>	<p>Patient Factor - Refuses to go to longterm care.</p>
F - 3	67	F	<ul style="list-style-type: none"> No grab bars in bathroom 	<ul style="list-style-type: none"> Unable to weight bear following knee surgery Unwitnessed fall - refused initial transfer to ED Fractured left ankle diagnosed 24 hours later 	<p>Patient factor - unable to weight bear</p>	<p>Environment Factor - Building management does not allow equipment attached to walls.</p>
F - 4	93	F	<ul style="list-style-type: none"> Wet bathroom floor (water or urine) Multiple medications and vital signs not measured regularly 	<ul style="list-style-type: none"> History of incontinence 	<p>Patient Factor - Loss of balance</p> <p>Patient factor - Potential incontinence episode led to wet floor</p>	<p>Task Factor - possible hypotension not ruled out</p> <p>Patient factor - incontinence</p>
F - 5	87	M	<ul style="list-style-type: none"> Walker placed too far away from seated client 	<ul style="list-style-type: none"> Client with dementia and history of falls 	<p>Patient Factor - possible syncope</p> <p>Environment Factor - incorrect placement of walker</p> <p>Task Factor - medication may contribute to syncope</p>	<p>Environment Factor - seated in chair without arms</p>
F - 6	91	F	<ul style="list-style-type: none"> Alone in apartment soaking feet in tub Did not have easy access to call button 	<ul style="list-style-type: none"> Unwitnessed fall into bath and unable to pull herself out 	<p>Patient Factor - slipped into tub and remained there until morning</p>	<p>Environment Factor - no way to call for help</p>

F - 7	68	M	<ul style="list-style-type: none"> • At high risk for fall with one leg 2" shorter than other 	<ul style="list-style-type: none"> • Unwitnessed fall from bed resulting in significant hematoma • Following day had witnessed fall in doctor's office - no injury 	Patient Factor - leg length discrepancy	
F - 8	88	F	<ul style="list-style-type: none"> • Lost 30 lbs in past year • Required additional dietary support in retirement home 	<ul style="list-style-type: none"> • Unwitnessed fall from sofa in retirement home • Unable to provide details but told PSW she thought she had fainted • Fractured pelvis 	Patient Factor - excessive weight loss not treated	Organizational and management Factor - Retirement home does not prepare 'Renal' meals
F - 9	77	F	<ul style="list-style-type: none"> • Uses 4-wheeled walker and/or cane outside of apartment but will not use it inside - prefers to "wall or furniture walk". • Prepares her own medication despite dementia 	<ul style="list-style-type: none"> • Unwitnessed fall - did not notify caregivers for 5 days. Taken to primary care and diagnosed with compression fracture of spine • Competent clients can make their own decisions • Carpet has contributed to falls in the past 	Patient Factor - refuses to use walking aids in apartment	Environment Factor - consideration to removing carpet from apartment
F - 10	85	F	<ul style="list-style-type: none"> • Family believes they can manage the mother's care on their own 	<ul style="list-style-type: none"> • Son witnessed fall but unable to get to her. • Client fell into bookcase and lost consciousness • Client is severely cognitively impaired, restless and requires bi-lateral support. 	Patient Factor - Client severely cognitively impaired and non-verbal and acts independently	Patient Factor - Requires constant supervision within reach of caregiver 24/7 Team Factor - Concern for family caregiver burnout Organizational and management Factor -at maximum amount of home care support
F - 11	80	M	<ul style="list-style-type: none"> • Client safer in manual wheelchair but prefers motorized • Medications contribute to sleepiness 	<ul style="list-style-type: none"> • Client fell asleep in motorized wheelchair and fell forward because of forward position in chair and no seatbelt. • Head contusion, transferred to ED and observed over night 	Patient Factor - sits too far forward in chair without seat belt	Environment Factor - safer in manual wheelchair because of position in chair Team Factor - receiving maximum home care services will need to transfer to care home if needs increase

F - 12	96	F	<ul style="list-style-type: none"> • Fall atypical of client • Requires medication review 	<ul style="list-style-type: none"> • Unwitnessed fall in bathroom secondary to dizziness • Fractured femur and head laceration • Returned home to independent living 	Patient Factor - requires work up for hypotension	Organizational and management Factor - Requires risk assessment for falls
F - 13	74	F	<ul style="list-style-type: none"> • Husband believes his wife's weakness and fatigue, kidney function and mild mental impairment are all contributing factors to fall. • Consistent complement of workers provide care. 	<ul style="list-style-type: none"> • Complex medical history and a history of frequent falls • Unwitnessed fall " legs just gave way" when walking across apartment from bathroom to bedroom using her 4 wheeled walker • Significant clutter in home • X-rays negative but in hospital x 10 days for treatment of cellulitis and newly diagnosed chronic renal failure. 	Patient Factor - newly diagnosed chronic renal failure - No new falls since starting dialysis (4 months).	Environment Factor - Clutter Team Factor - client required physical assessment by primary care physician
M -1	93	F	<ul style="list-style-type: none"> • Incorrect packaging technique used by community pharmacist resulting in client overdose • LPN delegated responsibility for medication to uncertified HCA 	<ul style="list-style-type: none"> • 93 yo legally blind Alzheimer's client unable to decipher that once daily medication was placed in every blister in a four dose per day blister pack 	Individual task Factor - Health Care Aid lacked skills and certification for medication delivery Patient Factor - elderly client legally blind	Task Factor - community pharmacist placed client's once daily medication in every blister of a four dose per day blister pack. 7 day blister pack contained 1 month's supply of medication.
M - 2	67	M	<ul style="list-style-type: none"> • Client with impaired memory discharged home with Home Parenteral Therapy (PICC line) • Home care agreed to deliver his daily IV antibiotics when there to do his foot dressing but w/e nurse departed before completion of infusion and client left the PICC line open to air. 	<ul style="list-style-type: none"> • Osteomyelitis and Multiple comorbidities including: depression, chronic alcoholism, hepatosplenomegaly, DVT, and acute renal failure • PICC line open to air places client at high risk of septicemia or endocarditis • PICC line removed and antibiotics delivered in clinic 	Individual Factor - home care nurse showed poor judgement leaving patient to complete the IV infusion and reconnect PICC line Patient Factor - client incompetent for managing IV medication	Organizational and management factor - Review of provincial policies and procedures for Home Parenteral Therapy Organizational and management factor - Review Home Care Medication Risk Assessment for IV medications

M - 3	89	F	<ul style="list-style-type: none"> Existing blister pack opened and new anticoagulant meds from separate blister pack were added to the original pack and taped close Multiple blister packs confusing for staff Home care manager not informed of change in antibiotic dose by MD or Pharmacist 	<ul style="list-style-type: none"> Medication management policy for provincial clients differs from private residential care clients - only pharmacist may adjust blister packs for provincial clients Anticoagulant dose missing and wrong dose delivered x 15 days noted by pharmacist 	<p>Team Factor - Physician and pharmacist neglected to inform home care of change in anticoagulant dose</p> <p>Task Factor - Use separate blister pack for medications that are regularly adjusted</p>	<p>Team Factor - need to improve communication between MD, Pharmacist and Home care</p> <p>Organizational and management factor - variation in medication policy between provincial and private clients</p>
M - 4	76	F	<ul style="list-style-type: none"> Client neglects to plug in IV pump to preserve batter power Client requires additional education regarding IV pump 3 weeks before Physician notified of recurrent missed doses and difficulty with IV pump 	<ul style="list-style-type: none"> Client irritated by IV pump alarm and switched off Missed multiple doses of antibiotics Consider referring client to the IV Outpatient Clinic 	<p>Patient factor - Lack of assessment of client ability to manage and troubleshoot IV pump issues</p>	<p>Team Factor - need to improve communication between MD, and Home care</p>
M - 5	81	F	<ul style="list-style-type: none"> Following iv infiltration and discontinuation of line nurse directed client to drink iv fluid Potential lack of validation of staff qualifications and ensuring equipment is readily available 	<ul style="list-style-type: none"> Client had oral blisters and normal saline drink burned mouth. 	<p>Individual Factor - home care nurse showed poor judgement telling client to drink her iv fluid. Evidence of having done this previously</p>	<p>Organizational and management factor - Observe and confirm staff qualification to practice</p>
M - 6	85	F	<ul style="list-style-type: none"> Two missed doses of antibiotics due to home care service assuming nurse received assignment despite never confirming back either verbally or electronically. Daughter had to coordinated home care nurse visits to LTC LTC facility did not have a nurse on staff who could deliver the IV medication 	<ul style="list-style-type: none"> Client being discharged from acute care back to longterm care and home care was to deliver the IV antibiotics. Daughter not notified of mother's transfer to LTC 	<p>Team Factor - multiple individuals involved in intersectoral communication</p>	<p>Organizational and management Factor - no RN on staff to deliver IV medication</p> <p>Organizational and management Factor - require a reliable system for assigning and confirming case assignment</p>

M - 7	31	M	<ul style="list-style-type: none"> • Pharmacy required a "limited use code" in order to dispense anticoagulant • When CCAC contacted physician for revised prescription he had left for the day • Delay in arranging services through CCAC (fax and telephone) 	<ul style="list-style-type: none"> • Client forgot to purchase anticoagulant from local pharmacy after discharge from acute care • Client had to go to ED at local hospital to receive antibiotic subcu injections • Mother unable to assist with injections 	<p>Patient Factor - no one available to assist with injection</p> <p>Task Factor - prescription for Lovenox injection was incomplete and could not be dispensed</p>	<p>Organization and management Factor - delay in sending/receiving Medical Referral resulted in a delay in arranging for nursing services and supplies and missed dose</p>
M -8	58	M	<ul style="list-style-type: none"> • Medication overdose of Enoxaparin. • Medication Administration Record (MAR) and Prescription (Rx) were both available in the home but showed different information. • Pharmacist unable to clarify and nurse unable to contact family physician.. 	<ul style="list-style-type: none"> • Client and spouse had limited facility with English • Nurse unfamiliar with client - first visit • Chart in home was incomplete and lacked contact information for doctor 	<p>Individual Factor - Nurse should have known not to use the same syringe x3 for medication administration</p>	<p>Task Factor - Lack of simple, clear and consistent instructions for medication dose and administration</p>
M -9	76	F	<ul style="list-style-type: none"> • Missed dose of antibiotic because medication was not delivered by pharmacy • Home Care supervisor told patient should return to hospital for antibiotic dose - client's daughter told by hospital not to return • Information system / Service Provider system failure. Medical supply fax appeared to Home Care system but was not received by the Pharmacy's system until 1 day later. 	<ul style="list-style-type: none"> • Caregivers (informal) did not understand who to contact for service - Home Care nursing, Pharmacy, personal support • Client does not speak English 	<p>Organisational and management factors - Lack of process to follow up and confirm that patient went to ED for dose when all else failed.</p> <p>Team factor - Need to strengthen case management function to improve problem-solving, rather than leaving it to client/family</p>	<p>Team Factors - Communication breakdown between CCAC and Caregiver; CCAC and Pharmacy and CCAC and Hospital</p> <p>Work Environment Factor - Lack of feedback loop in ordering systems to confirm receipt of order by pharmacy back to requester.</p>

M -10	97	F	<ul style="list-style-type: none"> • Longterm family doctor retired and new family doctor does not do home visits • New family doctor was not responsive to calls from community pharmacists regarding need for hypotension medication assessment. • Being managed by multiple physicians - cardiologist, family doctor, walk-in clinic and ED - poor inter- MD communication and misunderstanding of who was responsible for specific care management. • Client fiercely independent 	<ul style="list-style-type: none"> • 97 yo client's was cared for by daughter who recently died leaving the client with no one to take her to the family doctor. • Client is legally blind • Client has difficulty swallowing pills so nurse crushes medications which renders some inactive and others that can't be crushed she can't swallow e.g. iron and stool softener 	<p>Patient Factor - Lack of client advocacy and support</p> <p>Patient Factor - Client chooses to live alone</p>	<p>Team Factors - Multiple organizations and physicians delivering care with a lack of communication coordination</p> <p>Organizational and Management Factor - No mandatory Medical reconciliation post hospital discharge</p>
M -11	98	F	<ul style="list-style-type: none"> • Mixed antibiotics with Tylenol. • Resolved through Pharmacist's home visit and strategic placement of medications in room i.e. PRN meds in bag on door. 	<ul style="list-style-type: none"> • Legally blind 98 year old. • Pharmacist and Family physician both make house calls 	<p>Patient Factor - Legally blind unable to differentiate medications</p>	<p>Organizational and Management Factors - care of the medically complex elders requires a more comprehensive approach such as regular geriatric nurse home visits for clients over 70 years old to promote healthy aging in their own homes</p>
M -12	84	M	<ul style="list-style-type: none"> • Medication reconciliation revealed multiple 'Over-the-Counter' meds which interfered with prescription meds. • Lack of availability of home based specialty clinic services e.g. CHF 	<ul style="list-style-type: none"> • Client's first language is Portuguese • Unsure if patient ever received formal CHF self-management teaching 	<p>Patient Factors - Drug-drug interaction between OTC and prescribed medications</p>	<p>Task Factors - All elderly patients should undergo a MedsCheck review upon discharge from hospital</p>

M -13	81	F	<ul style="list-style-type: none"> • Increase in DM medication not instituted in timely manner. Elevated blood sugars persisted. • Family was not directly informed about medication change in a way that they could immediately operationalize it • Would benefit from a single in-home record that facilitates good communication about mom's care plan 	<ul style="list-style-type: none"> • Multiple PSW's and family caregivers involved in client's medication administration adding complexity • Family aware of medication changes but did not investigate how to implement change 	<p>Work Factor - Use of blister packages as a medication management tool good for stable long term medications, but is a challenging to incorporate mid-cycle changes</p>	<p>Task Factor - Accepting PSW as fully peer-equal member of the health care team, would be key to identifying when patient is off her baseline</p>
M -14	91	M	<ul style="list-style-type: none"> • Syncope due to poor or no medication reconciliation performed at previous admission and at discharge • Multiple medication discrepancies identified by home care. • MedRec resulted in most meds being discontinued. 	<ul style="list-style-type: none"> • 91 yo client is hearing and sight impaired. 	<p>Task Factor - inadequate medication reconciliation</p>	<p>Task Factor - inadequate medication reconciliation</p>