Informational Discontinuity of Care and Culprit Drugs

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I have no conflicts of interest to declare.

Mind the gap!

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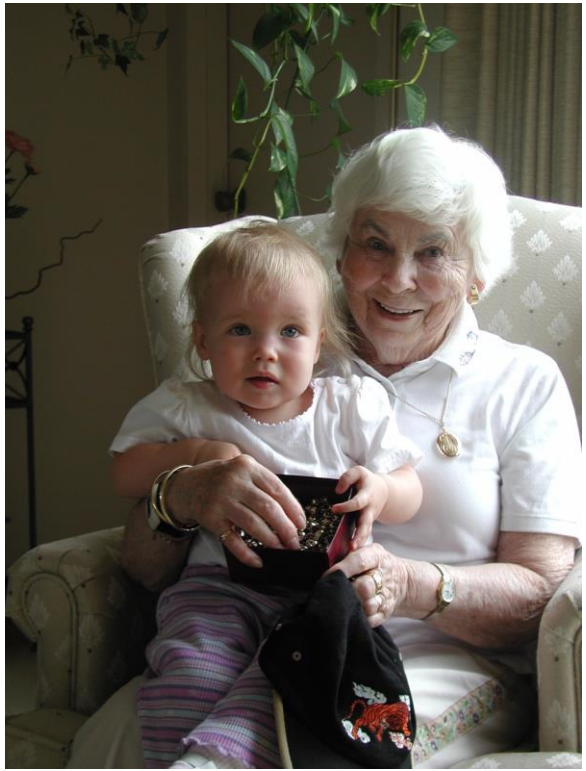
Gaps in Interconnectivity of a Hospital's Electronic Systems Create Vulnerabilities at Transitions of Care

Pat Shore (and Ava)



Pat’s story

- I was called to the ED late one night, my stepmother Pat was confused, agitated, couldn’t remember how she got there and struggled to leave
- Back to normal the next morning
- Stroke had been ruled out
- Pat was released without a diagnosis
- I suspected a drug reaction and found her sleeping pill was the culprit
- the family doctor stopped it (it was not to have been used long term!)
- Two years later, Pat had the same behaviour while awaiting colon cancer surgery causing surgery postponement (and possible cancellation) causing great stress to Pat and our family
- When asked the nurses confirmed she’d had the same sleeping pill and stopped it
- Surgery was scheduled and was successful with many more years of healthy living
- We don’t know how this would have turned out if surgery had been cancelled

Marilyn Berney

Marilyn's Story

Marilyn's daughter, Marybeth, her sister, Kathie, and I pieced together what we think happened:

- Marilyn took a new drug, given by a new doctor, alone at home
- She had a severe allergic reaction but was able to call 911 and get to the hospital.
- Her sister Kathy (a retired nurse) identified the drug Marilyn had been given as Prinzide.
- It is a combination drug containing lisinopril (an ACE inhibitor used to lower blood pressure and recommended for diabetics) AND hydrochlorothiazide
- Combination drugs are problematic since when there are "adverse drug reactions" it's hard to know which of them is causing it.
- ER was able to identify hydrochlorothiazide as the culprit drug, so she'd possibly been on lisopril previously without problems.

Marilyn's Story cont'd

Questions:

- MAYBE – the GP prescribing the Prinzide didn't tell Marilyn about the combination drugs.
- OR -- Marilyn didn't remember about a previous allergic reaction years before
- BUT -- she DID remember the previous allergic reaction after her daughter Marybeth talked to the ED doctor and told her
- This new doctor had decided her BP wasn't well-controlled and changed to the new combination.
- The doctor obviously didn't know about the hydrochlorothiazide allergy.
- Since Marilyn DID remember the allergy in the hospital, we think she would probably have remembered it if the doctor had mentioned the hydrochlorothiazide to her by name at the time he prescribed the Prinzide.
- Since hydrochlorothiazide is first line treatment for high BP, Marilyn had probably been started on the hydrochlorothiazide many years before, when first diagnosed.

Marilyn's Story cont'd

- Marilyn was on respiratory support in hospital for 4 days
- She was released back home, had difficulty breathing, her lung had collapsed
- Taken again to the hospital
- Although back on life support she had been without oxygen too long and support was stopped

Marilyn Berney died on December 6, 1999 because information was not shared between parts of the system

Patients and families provide the continuity

- At present patients must act as the informational interface between parts of the healthcare system
- But most patients and families have the mistaken idea that information is “in the system” and available to all care providers
- For older adults, or anyone who is not able to communicate with the medical staff, their family has to play this role
- Many families either aren’t available, are not confident, don’t know how to do this or are intimidated by the healthcare setting.
- Information, especially of harms, MUST follow the patient wherever they are in their care

Adverse Drug Events (ADE)

In British Columbia, each year, adverse drug events occur:

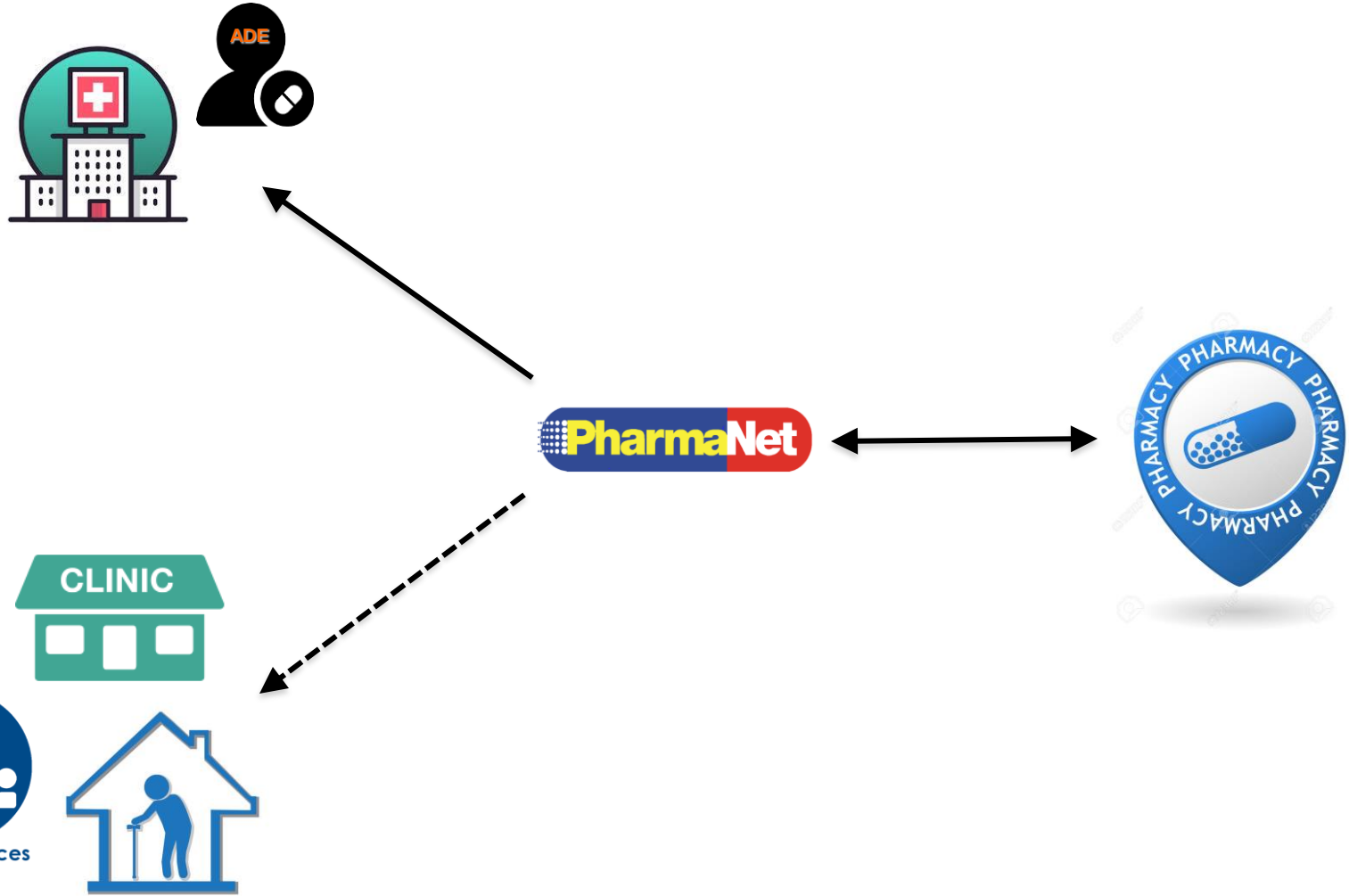
- 276,000 emergency department visits
- 100,000 hospital admissions

$714 million

Emerging Findings

- Reviewed 1,356 ADE cases presenting to 4 BC hospitals:
    - 1 in 9 ED visits involve ADEs
    - 32.5% of ADEs were repeat ADEs
    - 80% of repeat ADEs were due to non-essential medications, or medications that could have been replaced by safer alternatives.

Why?


ADE
PharmaNet
PHARMACY
CLINIC
Rehab Services

What is ActionADE?

Software application

- Standardizes ADE documentation & creates brief unambiguous reports
- Generates patient-specific, medication-level alerts to warn providers before unintentionally re-exposing patients to harmful medications
- Can be hyperlinked to any electronic medical record & PharmaNet

http://actionade.org


ADE
ADE


PharmaNet


PHARMACY
PHARMACY
PHARMACY
PHARMACY


CLINIC


Rehab Services

PharmaNet

ADE

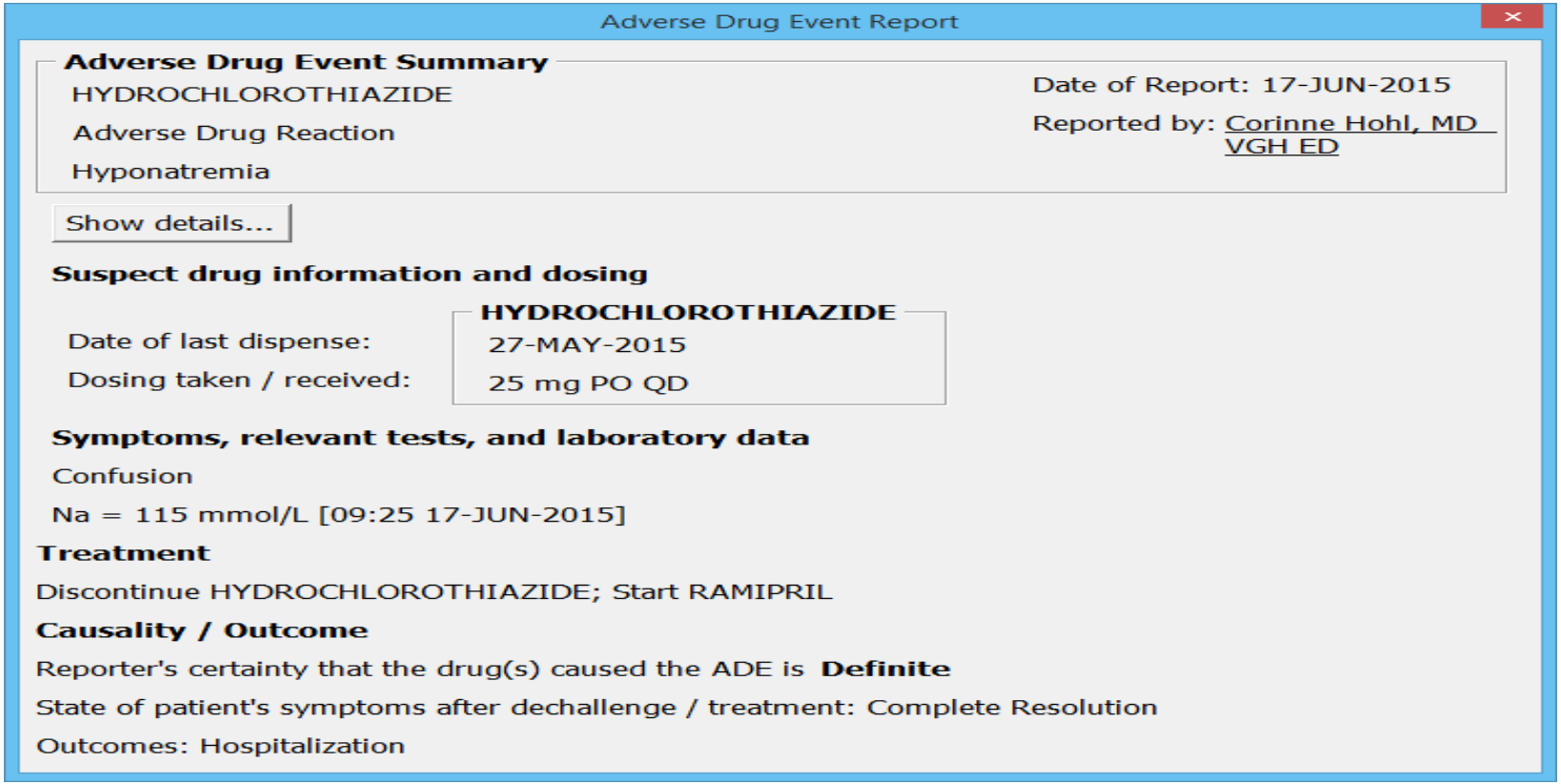
Community pharmacies

CLINIC

Future

Top Culprit Drugs / Drug Classes of Repeat ADEs

Drugs	Drug Classes
1. Warfarin	1. Anticoagulants
2. Insulin	2. Opioid analgesics
3. **Hydrochlorothiazide**	3. Antidiabetic agents
4. Furosemide	4. Atypical antipsychotics
5. Hydromorphone	5. Anticonvulsants



Scaling and Spread

- Acute care facilities:
  - Vancouver Coastal Health Authority
  - Providence Health
  - Provincial Health Services Authority
- Acute care facilities across BC
- Primary care facilities:
  - Vancouver Coastal Health Authority
  - Providence Health
  - Provincial Health Services Authority
- Nationally & internationally
- Explore patient-reporting

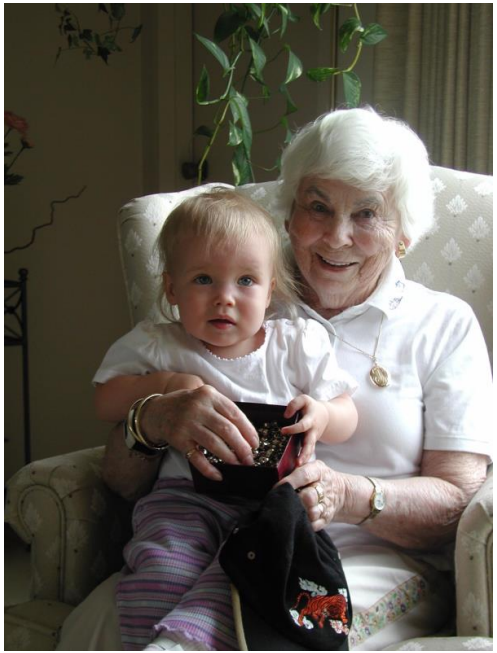
Significance

- Prescribing and dispensing medications remain the most common medical interventions across all specialties
- ADEs are common, costly and undermine medication effectiveness
- ActionADE will close a critical gap in medication information that is likely to reduce ADEs, and ADE-related harm and costs:

→ Assuming 20% effectiveness: $34M/year ($19-54M) in avoided costs

→ Assuming 50% effectiveness: $85M/year ($34-136M) in avoided costs

What matters for families?



Pat, in her late 80's, is holding one of her great-grandchildren, Ava, she lived into her 90's.

TRUST?

Marilyn got her PhD in Psychology at 60 yrs of age!
Marilyn died at 65 yrs from a repeat ADE.
She left behind four adult children.
She never met her grandchildren.


Thank you