Come Hell or High Water – Infection Control During and After the Alberta 2013 Flood
Gwyneth Meyers and Barbara Long, Infection Prevention and Control Calgary Zone
A Webber Training Teleclass

Alberta Health Services

Come Hell or High Water:
Infection Control During and
After the Alberta 2013 Flood

Gwyneth Meyers
and **Barbara Long**

Infection Prevention and Control
Calgary Zone

Hosted by

Paul Webber
paul@webbertraining.com

www.webbertraining.com   June 5, 2014

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Objectives:
To share our IPC experiences from a frontline and operational perspective

• Unfolding Events

• Response

• Recovery: Immediate and Long term

• Summary of Key Learnings

• Parting Thoughts

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**Calgary Zone
Health Care Sites Impacted**

Calgary
• Holy Cross Hospital Site
• Sheldon Chumir Health Centre

High River
• High River Hospital & Annex Building
• High River Public Health
• High River Mental Health

Canmore
• Canmore Hospital

Black Diamond
• Oilfields Hospital

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There was no warning!

June 19 Wednesday:
Heavy rainfall warning west of Calgary 300mm in 12 hrs

June 20 Thursday 0600:
Flooding in Canmore & Banff –
Trans Canada Highway is cut off

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Flooding in High River

Thursday June 20:
0900 Sandbagging at the Hospital
1030 Water approaches main hospital doors
1140 Power out, operating on generator
      No landline phones and cell phone reception poor
1236 State of local emergency
1607 Non essential people evacuated
2100 Pilot tested Helicopter landing on the roof
2159 Evacuated 2 maternity pts.

Friday June 21:
      water receding
      sewer system down, no potable water
      evacuated 150 patients
      600 people rescued by helicopter

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Main Hospital Entrance

Goal Minimize Damage   Preserve the Facility

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All hands on deck – water coming through the back door loading dock too!

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The main floor of the hospital affected - Coved floors matter!

In the end the whole hospital was closed for several weeks

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Thinking on your feet: Innovation and practicality matter

- Teamwork –everyone pitches in
- Use of disposables as soon as possible
- Early relocation of clean and sterile supplies
- Delivery of portable water
- Cut holes in fence to move water
- Use of sandbags, salt, white rock, linen
- What to do with soiled linen?
- What to do with waste?
- HVAC, change filters daily
- Fans to dry stairwell spaces
- Keep generator dry and fuelled
- Evacuation: manure loaders, helicopter on hospital roof
- How to keep your feet dry and where to sleep?

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Innovation and Practicality Matters: Generator Intake

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Evacuation in Manure Trucks and Tractors

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Canmore Hospital Flood: Thursday June 20
The same but different – scope of flood

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Time Lines:

Thursday June 20th
• Flood water entered through loading dock
• All hands on deck
Friday June 21st
• Pumping water from loading dock a loosing battle
• Installation of concrete berm
• Flood water involving entire lower level

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Moving to Higher Ground

• All essential supplies from MDR, Pharmacy, Stores, Kitchen and Laundry moved to the 1st floor

• Kitchen moved to1st floor LTC unit

• Maintain essential services for existing patients and community

• Maintained ability to perform emergency C-Sections

Food services in the LTC Kitchen

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Building the Berm

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Saturday June 22nd

• Flood water is held back by the concrete berm
• Six to eight inches of water
• No sewer back up
• No interruption of power or water
• No HVAC interruptions
• Canmore town site boil water advisory

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Lower Level of Hospital Flooded

Areas affected

• Kitchen/Cafeteria
• MDR
• Laundry Services
• Housekeeping
• Pharmacy
• Stores/Storage area
• Boiler Room
• Maintenance
• Large Conference Room
• Offices/Staff Lounges/Locker Rooms

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Unfolding Story in Calgary

Thursday June 20: Flood warnings
0830 Contacted frontline ICPs in Canmore and High River
Sent all the resources we had:
• Water Loss Document
• Construction and Design Guidelines
• Mold Remediation Document
• CDC Flood/ Hurricane Document
• APIC Tips for Flood and Hurricanes
1230 Lost Contact with ICPs
Only news was from the Internet

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Friday June 21st

- Sheldon Chumir and Holy Cross Health Care Sites flooded.
- Bridges across the Bow River closed
- Cutting off Calgary North/South
- ICPs who had to cross the river are sent home early
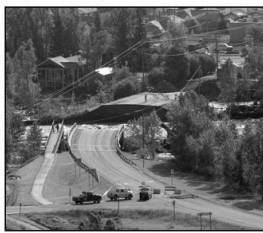- No impact to IPC program
- Limited contact with ICPs in Canmore and High River

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Flood Impact on Black Diamond Oilfields Hospital

Black Diamond Town
- Water treatment Plant affected
- Overland hauling of potable water
- Road washed out to Turner Valley
- **Impact on Hospital**
- Sterile supply transport- disposables
- Water restriction
- Bottled water
- Portable Toilets

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Initial Cleanup: Canmore

- Community Volunteers and staff squeegee and shovel water and silt into open elevator shaft

- Rinsed, mopped and sanitized floors and walls up to three feet

- All kitchen equipment washed and sanitized

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Recommissioning of Medical Device Reprocessing

MDR
- Terminal cleaning of department
- Sterilizer Validation (Qualification) CAN/ CSA Z17665-1-09(leak testing, air removal and empty load testing)
- Re-sterilizing of all supplies due to excessive moisture
- Steris technician in to service equipment.
- AER not able to use until boil water advisory rescinded (second week of July)
  Workplace Health and Safety, FM&E and IPC tour
- Checked air and wall moisture

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Recommissioning continued

- **Laundry** back in service Tuesday June 25 (terminal cleaning)
- **Stores** (supplies not compromised)
- **Pharmacy** (recommission of Addmix hoods,floor and wall surfaces)
- **Kitchen/Cafeteria** inspected by Public Health

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Belfor Restoration BELFOR Restoration Services

Thursday June 28

Recovery plans discussed with Site Manager, IPC, ES, FME, Pharmacy, MDR and OR. Daily planning meetings
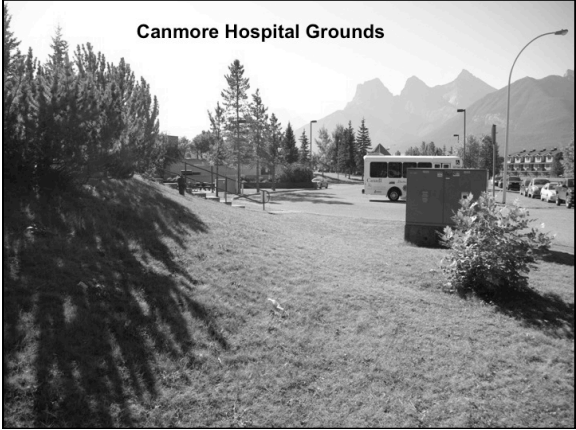
- IPC Construction and mould remediation checklists completed for all areas
- Cleaning, disinfection, dehumidifiers, industrial fans
- Drywall removed up to three feet
- Mould inspection and removal
- Negative air pressure maintained in all areas
- Assessment and disposal of flood affected equipment and furnishings
- Inspection of areas pre and post construction

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Canmore Hospital Grounds

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High River Clean up

- The same process but more extensive
- There was more impact to the town infrastructure
- The hospital was closed for weeks and opened in stages
- There is still ongoing construction and remediation to some affected areas
- There was considerable damage; mold, dirt and debris
- Staff were displaced and relocated to other facilities
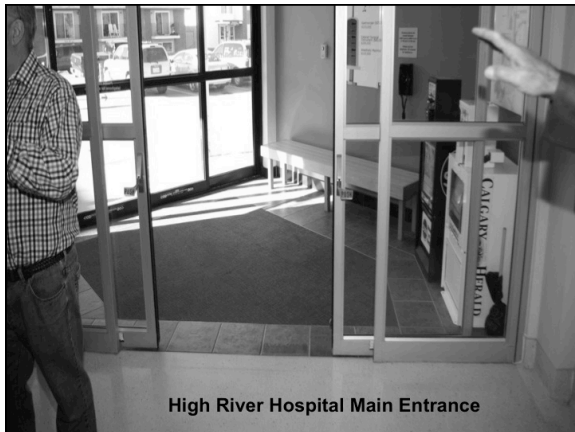
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High River Hospital Main Entrance

Front High River Hospital

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Calgary Clean up: Same process

Major considerations were:

• Water damage, mold remediation, assessment of equipment and supplies, recommissioning of water and air handling systems

• Sheldon Chumir had power restored and was re-opened within days.

• Holy Cross Centre significant damage. Reconstruction is ongoing. Cancer care staff and clinics are still being relocated

• Communicable Disease and Public Health begin surveillance for: respiratory and diarrheal illness

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Lessons Learned - general

• Things happen fast
• Communication is very difficult
• Improve internal communication options
• Don't just rely on landline and cellular
• Facilities can be isolated
• AHS requires representation at local Emergency Operation Centres (EOCs)
• Local planning and issues are unique to sites
• We have an amazing infrastructure and resources to help us recover

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Lessons Learned IPC

• Need to build an IPC flood resource kit
• Create IPC check lists for Response and Recovery
• Build better communication with Workplace Health and Safety because of significant overlap
• Restoration company was an excellent resource

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IPC Response Check list:

❑ **Communication:**
  Who and contact numbers
❑ **Assess Facility Functionality:**
  ❑ Air handling
  ❑ Power
  ❑ Water
  ❑ Sewage
  ❑ Waste disposal
❑ **Supplies & Equipment**
  (Including paper, books and files)
  ❑ check supplies
  ❑ use disposable
  ❑ protect and move

❑ **Assess Patient Safety**
  ❑ Hygiene
  ❑ Transport
  ❑ Nutrition
  ❑ Medicine
❑ **Pharmacy and Biologicals**
  (work with Public Health)
  ❑ Medical Fridges
  ❑ Food and Nutrition
❑ **Staff Safety**
  ❑ PPE
❑ **Clinical Services**
  ❑ ER, OR, MDR, Lab, Laundry,

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IPC Recovery Check list:

❑ **Communication:**
  Especially with WHS and FME

❑ **Facility Integrity:**
  ❑ Assess for water damage
  ❑ Inspect for mould
  ❑ Water removal and drying
  ❑ Repair and construction
    ❑ containment
  ❑ Recommissioning
    ❑ Air handling (cleaning)
    ❑ Water (safety and flushing)

❑ **Cleaning and Disinfection**

❑ **Personal Protective Equipment**

❑ **Supplies & Equipment:**
  (Including paper, books and files)
  ❑ Inspect for exposure to moisture and humidity
  ❑ Assess damage: what can be salvaged, cleaned, reprocessed, repaired or discarded
  ❑ Storage & transport
    ❑ dirty
    ❑ clean
  ❑ How to clean and disinfect

❑ **Clinical Areas**
  (ER,OR, MDR, Pharmacy etc)
  ❑ Assess needs re IPC
  ❑ Cleaning and disinfection
  ❑ Recommissioning if necessary e.g. MDR

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Final thoughts

• There are a lot of amazing people out there

• 1 year later – ongoing impact on peoples lives (Post Traumatic Stress)

• All the planning in the world can't prepare you for all the events that occur during a disaster

• The flood cost over $ 2 billion

• We are lucky to have the infrastructure we do

• There are differences between developed countries and the third world ....
  but we are all human and powerless in the face of mother nature.

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Flooding in Malawi February 2013

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$3600 bought seed for 2800 families and in the end prevented starvation

This is another story to tell, you donated, we bought seed, people planted and now they have started harvesting. What you can see in the picture is a good example of a very good harvest. This encourages me a lot because people will have enough food for a number of months. Zikomo kwambiri (thank you in Chichewa) for the assistance you sent. People have come to our house with these healthy cobs of maize to demonstrate the results of their labour.

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Greetings from Malawi. Thank you very much for sending us news and pictures about the floods which have hit Calgary. The moment I opened your message I was forced to call all members of the family to show them the pictures which are very disturbing considering the fact that they know what it means to be affected by floods. I have shared the same news to friends here. They are touched. We promise you and all who have been affected prayers and good wishes until all is well and they have their homes fixed and that they are healed from the problem. Please let us know about what is happening.

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Coming Soon

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