Case Study from the Field
September 30, 2015 | 1:00pm – 2:15pm

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A global health funder was interested in funding the deployment of gas cryotherapy devices for the treatment of precancerous cervical lesions.

- Cervical cancer continues to cause more than 260,000 deaths annually\(^1\).
  - With about 85% of those deaths occurring in low- and low middle-income countries (LMICs)
  - When caught early, cervical cancer is curable

\(^1\) Source: GLOBOCAN 2012 (IARC), Section of Cancer Surveillance (6/9/2015)
A global health funder was interested in funding the deployment of gas cryotherapy devices for the treatment of precancerous cervical lesions.

- The most efficient and effective strategy for detecting and treating cervical cancer precursors in low-resource settings is:
  - Screen using VIA\(^2\) and
  - Treat using cryotherapy\(^3\)

- This strategy is optimally achieved in a single visit and can be carried out by competent physicians and health professionals, including nurses and midwives
  - Cryotherapy is considered safe
  - The only real “risk” is providing sufficient treatment efficacy at all settings in which it is deployed and not reaching as many screen positive women as possible.

\(^{2}\) PAHO. Situation Analysis: Strategies for cervical cancer screening with visual inspection with acetic acid (VIA) and treatment with cryotherapy in Latin America and the Caribbean. Washington, D.C.: PAHO; 2012

\(^{3}\) Cryotherapy is a freezing technique that destroys precancerous tissue typically using liquid nitrogen or compressed gases: Carbon dioxide or Nitrous oxide.
By taking a **strategic** risk management approach to this device deployment decision we...

- Had a systematic way to capture, quantify, understand, and manage the uncertainty inherent in the decision.

- Enabled consideration of both upside potential and downside possibilities when generating alternatives.

- Minimized the “unexpected” outcomes.
  - Uncertainty in outcome was better understood and accepted

- Delivered clarity in the recommendation for strategy implementation and operational management
  - Customize strategies based on each individual country’s distribution of health facility type and treatment capacity.
  - Coordinate roll-out of equipment with each country’s expected level of diagnostic screening over time.
Assessing in-country treatment situations revealed several challenges to introducing cryotherapy treatment in low resource settings.

### Target Cohort
- **Screening**
- **Treatment**
- **Impact**

#### Screening Availability
- Present to be Screened
  - Women 30 – 49 yrs. old

#### Screening Frequency
- Tier 1: Small community health center
- Tier 2: Large health center or district hospital
- Tier 3: Regional or national hospital

#### Screening Accuracy
- Abnormal VIA
- Cryotherapy Eligible

#### Treatment Efficacy
- Leep¹ or other Treatments

#### Device Limitations
- Loop Electrosurgical Excision Procedure; electric current is run through a loop of wire used to excise the neoplastic cells

¹ Loop Electrosurgical Excision Procedure; electric current is run through a loop of wire used to excise the neoplastic cells
Although able to sufficiently screen for lesions, tier 1 community health centers were not capable of providing sufficient treatment efficacy.

<table>
<thead>
<tr>
<th>Type of health facility</th>
<th>Capability of Effectively Treating Cervical Lesions after training with Cryotherapy Device</th>
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</thead>
<tbody>
<tr>
<td>Tier 1: Small Community health center</td>
<td><img src="image1" alt="Graphs for Urban Facilities" /> <img src="image2" alt="Graphs for Rural Facilities" /></td>
</tr>
<tr>
<td>Tier 2: District hospital or larger health center</td>
<td><img src="image3" alt="Graphs for Urban Facilities" /> <img src="image4" alt="Graphs for Rural Facilities" /></td>
</tr>
<tr>
<td>Tier 3: Regional or national hospitals</td>
<td><img src="image5" alt="Graphs for Urban Facilities" /> <img src="image6" alt="Graphs for Rural Facilities" /></td>
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Therefore, initial deployment strategies options focused on “protecting” the health benefit.

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¹ As assessed by PATH, an international nonprofit organization and leader in global health innovation. [www.path.org](http://www.path.org)
Incorporating the uncertainty of the variables for each of the deployment strategies generated distributions of potential health benefit.

The disability-adjusted life year (DALY) is a universal metric that allows researchers and policymakers to compare very different populations and health conditions across time. DALYs equal the sum of years of life lost (YLLs) and years lived with disability (YLDs).

Axis values intentionally removed.
Using the strategic risk management approach we looked for both opportunities to protect from downside uncertainty and create upside potential.

Non-gas options were considered to offset gas availability risk and potentially offer a way to reach tier 1 patients as they are screened.
By removing the rural facilities’ dependency on the uncertainty of gas availability, it becomes less of a driver of potential downside.

Note: The Cost and timing of non-gas cryotherapy devices was included in the analysis.
A strategy to help minimize the loss to follow-up from referrals by incorporating non-gas equipped mobile units created additional health benefit.

![Cumulative Distribution of DALYs Averted (2015 - 2030)](chart)

**X** – Base Case Value  
**I** – Expected Value

Note: The Cost and impact of a standard mobile unit campaign was considered in the analysis along with the timing and cost of non-gas cryotherapy devices.
Risk management is one of three fundamental management capabilities.

Consider the value of incorporating strategic development opportunities along with risk management activities.

It’s all about being able to identify the risks and opportunities.