Systems Strengthening and Quality Improvement in Global Burn Care & Prevention

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Learning Outcomes

• Understand the incidence and outcomes of burn injuries in a resource poor environment
• Describe current service provision in general terms
• Define barriers to implementing effective burn care and prevention
• Define the following:
  – Inequality & Inequity
  – Systems Thinking
  – Quality Improvement
  – Knowledge to Action
  – Implementation Science
• Be able to utilise the principles of implementation science and systems thinking to create a sustainable and measurable model for improvement
Program

• Burns in global context
• Definitions
• Barriers to effective prevention & care
• Introduction to implementation science

• Introduction to systems thinking
• Group exercise
• Summary & Close
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Burns in a Global Context

- Massive discrepancy in incidence and outcomes
- Largely preventable
- Age and gender bias
- Fall between MDG’s
- Lack of awareness
- No champions

- Inappropriate models of care
- Limited human resource
- Cultural responses
- Disease of poverty
- ‘Catastrophic’ poverty
- Lack of political will
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Inequality & Inequity

- Inequities are **Avoidable** inequalities in health between groups of people within and between countries
Task

- List some justifiable and unjustifiable inequalities with respect to health
Examples

- Age
- Gender
- Genetic predisposition
- Environment (climate)
Examples

- Education
- Income
- Environment (residence)
- Insurance
• Inequalities in outcomes reflect inequalities in the determinants of outcomes
Determinants of Health

- Social
- Cultural
- Political
- Economic
- Educational
- Climatic
- Geography
- Transport
- Infrastructure
- Legislation
- Security
- Corruption
Systems Thinking

• Systems thinking is a set of synergistic analytical skills used to improve the capability of identifying and understanding systems, predicting their behaviours and providing modifications to them in order to produce desired effects. These skills work together as a system.

A Definition of Systems Thinking: A Systems Approach
Procedia Computer Science
Volume 44, 2015, Pages 669-678
Ross D. Arnold, Jon P. Wade
Systems Thinking

• Every intervention, from the simplest to the most complex, has an effect on the overall system, and the overall system has an effect on every intervention.

• Provides a way forward for operating more successfully and effectively in complex real world settings

• Reveals underlying characteristics and relationships of systems
Quality Improvement

- Safe
- Effective
- Patient centred
- Timely
- Efficient
- Equitable
Knowledge to Action

A dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the healthcare system.
Implementation Science

The study of processes used in the implementation of initiatives as well as the contextual factors that affect these processes.
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Task

- List a number of **barriers** to implementing effective burn care & prevention in a resource poor environment

- List a number of **facilitators** to implementing effective burn care & prevention in a resource poor environment

(5 mins)
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Introduction to Implementation Science

• Affordable, effective interventions exist to reduce morbidity and mortality, but little understanding of how best to deliver these across the full range of existing health systems and wide diversity of possible settings

World Health Organisation
What is Implementation Science

Takes what we KNOW...

And turns it into...

What we DO
Examples

- Described 2400 years ago (Hippocrates)
- 1497 Vasco de Gama – effects of fruit known
- James Lind proved treatment with citrus fruit 1753
- In 18th Century killed more sailors than enemy action
- 1867 Merchant Shipping Act enforces daily lime ration
Examples

- John Snow 1854 link between contaminated water and cholera
- 1855 Published model of aetiology
- 1850’s – 1900 massive improvements in clean water supply and sewage removal
Examples

- 1700 – Innoculation used as folk remedy
- 1796 – Jenner Vaccine
- 1976 – Worldwide Campaign
- 1979 - Eradicated
The Global Burn Context

- Most burns occur in LMIC’s
- Most burns are preventable
- Appropriate first aid can decrease extent of burn wound
- Early appropriate management by trained staff improves outcomes
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- Most burns occur in LMIC’s
- Most burns are preventable
- Appropriate first aid can decrease extent of burn wound
- Early appropriate management by trained staff improves outcomes

- Most research is in HIC and for HIC
- Very few national / local prevention programs
- Very limited knowledge and practice of appropriate first aid
- Massive lack of trained staff
Current Reality

Current research and practice benefits disproportionately wealthy countries or wealthy people in poor countries.
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The WHO Health System Framework

**System Building Blocks**

- SERVICE DELIVERY
- HEALTH WORKFORCE
- INFORMATION
- MEDICAL PRODUCTS, VACCINES & TECHNOLOGIES
- FINANCING
- LEADERSHIP / GOVERNANCE

**Overall Goals / Outcomes**

- IMPROVED HEALTH (level and equity)
- RESPONSIVENESS
- SOCIAL & FINANCIAL RISK PROTECTION
- IMPROVED EFFICIENCY

ACCESS COVERAGE

QUALITY SAFETY
Building Blocks

- Governance
- Medicines and Technologies
- Information
- People
- Human Resources
- Financing
- Service Delivery
<table>
<thead>
<tr>
<th>Usual approach</th>
<th>Systems thinking approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Static thinking</strong></td>
<td><strong>Dynamic thinking</strong></td>
</tr>
<tr>
<td>Focusing on particular events</td>
<td>Framing a problem in terms of a pattern of behaviour over time</td>
</tr>
<tr>
<td><strong>Systems-as-effect thinking</strong></td>
<td><strong>System-as-cause thinking</strong></td>
</tr>
<tr>
<td>Viewing behaviour generated by a system as driven by external forces</td>
<td>Placing responsibility for a behaviour on internal actors who manage the policies and &quot;plumbing&quot; of the system</td>
</tr>
<tr>
<td><strong>Tree-by-tree thinking</strong></td>
<td><strong>Forest thinking</strong></td>
</tr>
<tr>
<td>Believing that really knowing something means focusing on the details</td>
<td>Believing that to know something requires understanding the context of relationships</td>
</tr>
<tr>
<td><strong>Factors thinking</strong></td>
<td><strong>Operational thinking</strong></td>
</tr>
<tr>
<td>Listing factors that influence or correlate with some result</td>
<td>Concentrating on causality and understanding how a behaviour is generated</td>
</tr>
<tr>
<td><strong>Straight-line thinking</strong></td>
<td><strong>Loop thinking</strong></td>
</tr>
<tr>
<td>Viewing causality as running in one direction, ignoring (either deliberately or not) the interdependence and interaction between and among the causes</td>
<td>Viewing causality as an on-going process, not a one-time event, with effect feeding back to influence the causes and the causes affecting each other</td>
</tr>
</tbody>
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*Modified from Richmond, 2000 (28).*
Ten Steps

**Intervention Design**
- Convene stakeholders
- Collectively brainstorm
- Conceptualise effects
- Adapt and redesign

**Evaluation Design**
- Determine indicators
- Choose methods
- Select design
- Develop and plan timeline
- Set a budget
- Source financing
Challenges in Resource Poor Environments

• Aligning policies, priorities and perspectives among donors and national policy makers

• Managing and coordinating partnerships and expectations among system stakeholders

• Implementing and fostering ownership of interventions at national and sub national level

• Building capacity at the country level to apply a system analytic perspective
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Group Exercise
Task 1

• You are responsible for improving the care and prevention of burn injuries in this region of a tropical country
• You decide to take a systems approach and convene a stakeholders meeting
• Who will you invite?
• What will your agenda be?
• What are your objectives and outputs?
Task 2

• Describe the positive and negative assets of the road system and its relation to current health service provision.
Task 3

- The epidemiological data suggests there are a lot of minor and moderate injuries in the rural areas, especially the South East
- What factors might contribute to this distribution?
- How might this information contribute to the development of a prevention strategy and what else would you need to know?
- How might you get further information about the epidemiology and etiology?
Task 4

• Government data suggests a lot more major burn injuries in the capital.

• If this is true, why might that be?

• If true, how will this effect your planning of the provision of burn care?

• If not true, what might be the causes for ‘misinformation’?
Task 5

• There are many more cases requiring surgical reconstruction and rehabilitation in the Northern areas.

• Why might that be?

• How will this information affect your plan for provision of services?
Task 6

• Based on what you know so far create a basic strategy for improving burn care and prevention under the following headings:
  • 1) Which facilities will treat burn injuries and what level of care they will provide
  • 2) What human resources will be required
  • 3) How you will address burn prevention activities
  • 4) What indicators you will use to assess impact
A key challenge faced by the global health community is how to take proven interventions and implement them in the real world. Affordable, life-saving interventions exist to confront many of the health challenges we face, (including burns), but there is little understanding how to deliver those interventions across the full range of existing health systems and in the wide diversity of possible settings.

The Centre for Global Burn Injury Policy & Research at the College of Human and Health Sciences aims to address these issues combining implementation science, quality improvement methodology, participatory action research, health economic studies, outcomes research, impact evaluations and strategy development. Overcoming the barriers of putting knowledge into action is a key part of the process and implementation science provides the framework for doing this. The Centre will be working closely with international organisations and agencies and other academic centres as well as governments and the World Health Organisation to develop relevant and appropriate policies and drive forward the research agenda to improve global burn care and prevention.

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Any Questions
Thank You

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