Tackling new diseases

Intervention choices: what are the issues?

Isaac Newton Institute Webinar, 11 September 2020

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Outline

Learning from the past....
..... to better prepare interventions for future pandemics

• Drawing on epidemic experiences in Africa
  – Ebola
  – HIV
  – Covid-19

• Key lessons on interventions for future pandemics

• Intervention choices

• Planning for a marathon, not a sprint

• Conclusion - Five key lessons from epidemics in Africa
Epidemics in Africa:
What have we learnt from Ebola, HIV & Covid-19?
What lessons for future pandemics?

Number of epidemics and other public health emergencies in the WHO African region, 2016–2018

Ebola epidemics in Africa

- Ebola virus: a filovirus in fruit bats, porcupines and non-human primates
- 2014-2016 outbreak – 28,616 cases & 11,310 deaths
- Average case fatality rate: 50%
- 2020 outbreak in DRC – ~100 cases and is ongoing
Ebola – key lessons for future pandemics

1. Early identification & decisive action is critical

2. Healthcare worker protection – high exposure requiring PPE & proper cleaning and sterilization

3. Community engagement - key to successful contact tracing and control of community transmission

4. Comprehensive approach to outbreak control - package of interventions, including surveillance and contact tracing, laboratory services, infection prevention and control practices, case management, safe and dignified burials and social mobilisation
HIV epidemic in Africa

In Africa in 2019, there were:

- 25.6 million living with HIV (67% of global burden)
- 440,000 deaths (64% of global total)
- 970,000 new infections (57% of global total)
- In sub-Saharan Africa:
  - adolescent girls and young women account for 25% of all new infections
1. **Testing** - rapid, reliable and affordable diagnostic test for HIV – a game changer

2. **Human rights approach** - to overcome stigma and discrimination of vulnerable groups

3. **Community mobilization and advocacy** – achieved many of the hard-won gains in HIV

4. **Global solidarity** - access to life-saving medication, e.g. Global Fund, UNITAID, PEPFAR

HIV – key lessons for future pandemics
COVID-19 epidemic in Africa

In Africa, 1 Jan – 9 Sept, there were:

- 1,091,012 cumulative cases
- 23,323 deaths
Stay-at-home restrictions during the Covid-19 pandemic

1 September

Burden of Covid-19 in South Africa

7-day moving average of new cases, sentinel hospital admissions and Covid-19 deaths – to 8 Sept

Source: Lucille Blumberg and Waasila Jassat – DATCOV, NICD

*proportion of the population that have confirmed Covid-19 - cumulative risk (%)

7-day moving average of daily admissions to DATCOV sentinel hospitals and deaths

7-day moving average of national daily cases
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Covid-19 – key lessons for future pandemics:

1a. Early identification and action at global level

30 Dec 2019

ProMED
INTERNATIONAL SOCIETY FOR INFECTIOUS DISEASES

Published Date: 2019-12-30 23:59:00
Subject: PRO/AH/EDR> Undiagnosed pneumonia - China (HU); RFI
Archive Number: 20191230.6864153

30 Jan 2020

A pneumonia outbreak associated with a new coronavirus of probable bat origin

First genetic sequence of SARS-CoV-2 – 10 January

Covid-19 a global health emergency - 30 January

…”We have therefore made the assessment that COVID-19 can be characterized as a pandemic.”…. - 11 March 2020
Covid-19 – key lessons for future pandemics:

1b. Global leadership and governance

United Nations has had high-level meetings:

- HIV
- Tuberculosis
- Non-communicable diseases
- Covid-19
Covid-19 – key lessons for future pandemics:

1c. Early identification and action at country level to contain / mitigate spread of virus
Covid-19 – key lessons for future pandemics:

2. Avoid denial, interference and division by politicians

“We’re prepared, and we’re doing a great job with it. And it will go away. Just stay calm. It will go away.”
— Meeting with Republican senators, March 10

Days since confirmed cases first reached 30 per day

7-day moving average of Daily new confirmed COVID-19 cases
Denialism compromised South Africa’s HIV response – this affliction has impacted the Covid-19 response of some other countries.
Covid-19 – key lessons for future pandemics:

3. Importance of science and rapid freely available information

Explosion of knowledge – scientific papers since Jan 2020:

- PubMed.gov: 52,605 articles
- medRxiv: 8,547 Articles

8547 Articles (6743 medRxiv, 1804 bioRxiv)
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Intervention choices: Covid-19 prevention toolbox

- Social distancing
- Hand hygiene practices - hand washing / sanitizing
- Cloth masks & cough etiquette
- Symptom screening
- Cloth masks & cough etiquette
- Frequent environmental cleaning & fresh air ventilation
- Testing, isolation, quarantine & contact tracing
- Appropriate use of PPE
- Lockdown (extreme form of social distancing)
Intervention choices: HIV prevention toolbox

- Microbicides for women
  - Abdool Karim Q, Science 2010

- Oral pre-exposure prophylaxis
  - Grant R, NEJM 2010 (MSM)
  - Baeten J, NEJM 2012 (Couples)
  - Thigpen M, NEJM 2012 (Heterosexuals)
  - Choopanya K, Lancet 2013 (IDU)

- Dapivirine intravaginal ring
  - Baeten J, NEJM 2016

- Male circumcision
  - Gray R, Lancet 2007

- Treatment of STIs
  - Grosskurth H, Lancet 2000

- Female Condoms

- Male Condoms

- HIV Counselling and Testing
  - Coates T, Lancet 2000
  - Sweat M, Lancet 2011

- Treatment for prevention
  - Cohen M, NEJM, 2011
  - Donnell D, Lancet 2010
  - Tanser, Science 2013

- Behavioural Intervention
  - Abstinence
  - Be Faithful

Note: PMTCT, Screening transfusions, Harm reduction, Universal precautions, etc. have not been included – this is on sexual transmission
The evolving Covid-19 response
Planning for a marathon – not a sprint

- Virus spreading - trying to flatten the curve
- Lifting some restrictions with mitigation measures
- Very low / sporadic transmission
- Sustained resumption of all activities

Risk of reversion to epidemic state

- Planning - To live with Coronavirus threat until ~2021
- Transitioning from “Anxiety to Self-efficacy” - empowering people for sustainable self-implementation of prevention
- Enabling the new normal while mitigating risk of resurgence
Covid-19: Pivoting the prevention paradigm

Initial - government action

Pivot – prevention approach

Subsequent - Individual action

To reach – collective community action

Motivated individuals power to act for prevention

Motivated communities power for collective action

Ubuntu “I am, because you are”

Institutional power over people

Stay-at-home orders / Lockdown

Individuals power within people

Public health interventions

Agency

Self-efficacy

Collectivism

Anxiety
5 key lessons from past epidemics in Africa – for interventions in future pandemics

1. Global interdependence – global / regional / country leadership

2. Community involvement – valuing collectivism (Ubuntu) – I am safe, when you are safe

3. Working together for early identification (surveillance)

4. Evidence-based policy and decision making - Comprehensive approach to epidemic control and not banking on a silver bullet

5. Global solidarity (e.g., COVAX challenging vaccine nationalism)