ASEAN AGAINST AIDS

Tackle HIV and AIDS by enhancing current systems and utilizing technology in the upcoming digital age to prevent, combat and eradicate the epidemic. The involvement of ASEAN member states will be proposed. Fulfillment of a few goals of SDGs 3 and concurrent contribution to the achievement of ASEAN Economic & Socio-Cultural Blueprint 2025 will be possible.

The A Team

Ruvendren Gunasekeran
Amal Roy Lerroy Ashwin
Current AIDS Profile

Second most common cause of death among adolescents globally. A global and national risk across countries including ASEAN member states. [1]

Patients with HIV infection can progress to AIDS, a severe manifestation of the infection, over 10 years. [2]

1,846,900
ASEAN estimate of adults & children living with HIV

73,950
ASEAN estimate of deaths of all ages from AIDS

Source: https://aidsinfo.unaids.org/
Current Solutions

ASEAN combats AIDS by utilizing medical treatments, regional policies and boosting awareness through educational empowerment. We aim to further enhance those methods while proposing new scalable and practical solutions.

**Declaration of Commitments & regional policies such as:**

- **GETTING TO 0 NEW HIV INFECTION,**
- **0 DISCRIMINATION,**
- **0 AIDS-RELATED DEATHS,**

**Medical Treatments such as:**
Antiretroviral therapy (ART) suppress HIV to undetectable levels

% of people of all ages w/ HIV undergoing ART (2018)

- **Cambodia:** 81.00
- **Myanmar:** 70.00
- **Viet Nam:** 65.00
- **Singapore:** 78.00
- **Thailand:** 75.00
- **Laos:** 54.00
- **Philippines:** 44.00
- **Malaysia:** 48.00
- **Indonesia:** 17.00

Source: https://aidsinfo.unaids.org/
ASEAN combats AIDS by utilizing medical treatments, regional policies and boosting awareness through educational empowerment. We aim to further enhance those methods while proposing new scalable and practical solutions.

**Current Solutions**

**Declaration of Commitments** & regional policies such as:

- **Medical Treatments such as:**
  - Antiretroviral therapy (ART) suppress HIV to undetectable levels

- **Educational empowerment by**
  - AIDS research facility established TREAT Asia network across 20 pediatric & 21 adult clinical sites to end the epidemic [4]

**GETTING TO**

- **0** NEW HIV INFECTION,
- **0** DISCRIMINATION,
- **0** AIDS-RELATED DEATHS, [3]

**Challenges yet to be overcome** [6]:

- Poor knowledge of AIDS prevention among adolescents in Vietnam, Myanmar, Philippines & Indonesia
- Educational outreach programs yet to reach all key populations of HIV such as transgenders, homosexuals
- Tests & Treatments not well received due to fear of public discrimination
- Lack of medical expertise for ART treatment follow up, especially in rural areas
Tackling the Challenges

Emerging technologies today are accelerating at an unprecedented rate. Embracing technologies such as Artificial Intelligence (AI), Augmented Reality (AR) and Virtual Reality (VR) to develop solutions can fast-track the end of the HIV/AIDS epidemic by 2030.

Our solution: Transit Healthcare Services to a Digital Platform

Implement a Regional HIV-Care Super App (Mobile)

Target Audience: People living with HIV

How

Why

Rising trend of mobile usage (left) & network coverage (right) across ASEAN.

Mobile based solutions have wider reach across general population.

Ericsson estimates more than 95% of population in South East Asia will have mobile broadband access by 2022 [7]

Source: [https://www.mobileconnectivityindex.com/year=2018&dataSet=indexScore](https://www.mobileconnectivityindex.com/year=2018&dataSet=indexScore)

Source: [https://www.mobileconnectivityindex.com/year=2018&dataSet=dimension](https://www.mobileconnectivityindex.com/year=2018&dataSet=dimension)
Proposed Solution: HIV-Care Super App

User-friendly interactive app to improve connectivity among HIV patients across ASEAN member states. Provides personalized medication reminders, constant updates about the epidemic. Establishes an online platform to share concerns with medical experts.

**What**

- **Online video consultations** with qualified medical practitioners in ASEAN
- Utilize AR & VR to **improve ease of diagnosis** and better **educate on HIV / AIDS** symptoms
- **Personalized scheduled reminders** for medication, book medical appointments and **monitor health status**
- AI techniques to **filter misinformation on HIV. Personalized & reliable information** based on key factors: *user location, health status & outlook*
- **Online support community** for HIV patients & key populations in ASEAN, **moderated by** healthcare, mental health and LGBT wellness **experts**
- **Non-discriminatory & inclusive digital platform** for HIV patients to share concerns

**Where**

- **Collaborations with ASEAN Tech Hubs** [8] to develop Super App according to ASEAN’s cultural context

Proposed Solution: App Development Alternatives

Development in Tech Hubs across ASEAN would be ideal. However, if Tech Hubs are not be able to develop, ASEAN can acquire grants and develop the app in regions where development costs are low.

Grants can be acquired from the most active biomedical research organizations in ASEAN.

Total biomedical projects funded: **1278**
Proposed Solution: App Development Alternatives

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1. Grants can be acquired from the most active biomedical research organizations in ASEAN

Total biomedical projects funded: 1278

Bar chart below reflects top 10 most cost effective and skilled countries to develop apps [9]

Collaborate with ASEAN countries listed below to tailor development of app as per ASEAN’s cultural context

Global Services Location Index (GSLI) 2019

Source:
Distribution of App

HIV-Care super app will be distributed to HIV populations, both in rural and urban areas, across ASEAN through the movement of educational camps and campaigns. Led by authorities and conducted by advocates of HIV-survivors.

Action Plan

Engage Tech Hubs in developing Regional HIV-Care Super App according to industry standards.

Utilize readily available storage solutions such as Amazon S3 that is HIPAA compliant [10].

Liaise with Ministry of Educations across ASEAN to grant funds for HIV educational private camps primarily for people living with HIV.

Educational campaigns will be open for public.

Utilize TREAT Asia to train selected people living with HIV from key populations such as Transgenders, Homosexuals, etc. Form a team of advocates for HIV-positive people to lead the Super App based community.

Trainings improves knowledge of current HIV epidemic, public speaking and utilization of the HIV-Care super app.

Advocates of HIV-positive people will tour around ASEAN to spread awareness of HIV / AIDS, voice out against discrimination, teach HIV community to utilize HIV-Care App & empower HIV individuals to end HIV epidemic.
Extension of Action Plan

Extending current action plan with additional features such as educational games in Super App. Target audience will now include young people without HIV to enhance success of HIV prevention in their teens.

What

❖ Develop Educational Games on mobile platforms for young people.

Why

❖ Generally, lower knowledge of HIV among young people, results in higher new HIV infections. Need to further educate young people.

<table>
<thead>
<tr>
<th>Number of new HIV infections among young people (15-24) 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

Source: https://aidsinfo.unaids.org/

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<tbody>
<tr>
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</tr>
<tr>
<td>41.40</td>
</tr>
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</table>

Source: https://ourworldindata.org/hiv-aids
**Summary**

HIV-Care Super App with proposed action plan and extension reaches out to all HIV populations across ASEAN. Inclusive society while ensuring progressive recovery and prevention in long-run. 5 Goals of SDG 3 can be met by 2030

---

**3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases as well. **HOW:** Functionality of Super App can be replicated according to the context of other epidemics. Scalable and adaptable.

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**3.1** By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births. **HOW:** Action Plan & Super App can be adapted to educate on maternal mortality risks & complications.

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**3.8** Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all. **HOW:** Super App improves healthcare access via reliable connectivity. App can be expanded to educate users on financial & medical insurance.

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One Vision | One Identity | One Community
Resources Used

Appendix
• Countries are scored within a range of 0 to 100 across a number of indicators, with a higher score representing stronger performance in delivering mobile internet connectivity.

• The overall score is made up of four enablers, representing – what are commonly agreed to be – the key determinants of mobile internet access and usage: infrastructure, affordability, content and services, and consumer readiness.

Source: [https://www.mobileconnectivityindex.com/#/year=2018&dataSet=indexScore](https://www.mobileconnectivityindex.com/#/year=2018&dataSet=indexScore)
227 Active Tech Hubs in ASEAN

- Tech Hubs are physical spaces designed to foster and support tech start-ups.
- 14% of Tech Hubs are partnering with mobile operators.
- Tech Hubs have already contributed to the rise of popular apps such as Fave and Udemy.

Mahidol Oxford Tropical Medicine Research Unit (MORU), Thailand and Laos was set up in 1979 by researchers from Mahidol University in Bangkok. We started funding the programme in 2005. It carries out internationally recognised research into tropical diseases.

The Oxford University Clinical Research Unit (OUCRU), Vietnam was set up in Ho Chi Minh in 1991, then in Hanoi in 2005. It carries out internationally recognised research into infectious diseases.

% of biomedical projects funded by external parties for ASEAN (2018)

- Bill & Melinda Gates Foundation (BMGF)
- Canadian Institutes of Health Research (CIHR)
- European Commission (EC)
- Institut Pasteur
- Medical Research Council (MRC)
- National Institutes of Health (NIH)
- Swedish Research Council (SRC)
- Wellcome Trust

Source: https://worldreport.nih.gov/app/4tl/about
Global Services Location Index (GSLI) 2019

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>0.52</td>
<td>1.34</td>
<td>1.66</td>
<td>2.27</td>
</tr>
<tr>
<td>China</td>
<td>0.97</td>
<td>1.38</td>
<td>2.25</td>
<td>1.88</td>
</tr>
<tr>
<td>India</td>
<td>0.87</td>
<td>1.14</td>
<td>2.23</td>
<td>2.82</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.65</td>
<td>1.27</td>
<td>1.26</td>
<td>2.84</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.76</td>
<td>1.64</td>
<td>1.15</td>
<td>2.60</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.59</td>
<td>1.11</td>
<td>1.31</td>
<td>2.76</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.62</td>
<td>1.41</td>
<td>1.16</td>
<td>2.62</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.14</td>
<td>1.95</td>
<td>1.84</td>
<td>0.85</td>
</tr>
<tr>
<td>United States</td>
<td>1.21</td>
<td>1.89</td>
<td>2.34</td>
<td>0.40</td>
</tr>
<tr>
<td>Vietnam</td>
<td>0.56</td>
<td>1.33</td>
<td>1.17</td>
<td>2.82</td>
</tr>
</tbody>
</table>

Secure Storage Solution

The SingHealth data leak in 2018 and HIV data leak in 2019 have taught us the significance of data security. Since this app will be dealing with patient data, it must comply with international standards for handling medical data.

- Amazon S3 has a simple web services interface that you can use to store and retrieve any amount of data, at any time, from anywhere on the web.
- A growing number of healthcare providers are using Amazon S3 to process, store, and transmit protected health information.
- Amazon S3 is listed as HIPAA-eligible service by Amazon Web Services (AWS), meaning that it can be configured and used in a HIPAA compliant manner.

- The Health Insurance Portability and Accountability Act of 1996 (HIPAA) seeks to encourage electronic health records to improve the efficiency and quality of the US healthcare system through improved information sharing.
- HIPAA includes provisions to protect the security and privacy of protected health information (PHI).
Engage Tech Hubs in developing Regional HIV-Care Super App according to industry standards

Utilize readily available storage solutions such as Amazon S3 that is HIPAA compliant.

Utilize TREAT Asia to train selected people living with HIV from key populations such as Transgenders, Homosexuals, etc. Form a team of advocates for HIV-positive people to lead the Super App based community.

Trainings improves knowledge of current HIV epidemic, public speaking and utilization of the HIV-Care super app.

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Liaise with Ministry of Educations across ASEAN to grant funds for HIV educational private camps primarily for people living with HIV.

Educational campaigns will be open for public.

Action Plan
II. CHARACTERISTICS AND ELEMENTS OF ASEAN SOCIO-CULTURAL COMMUNITY BLUEPRINT 2025

A. ENGAGES AND BENEFITS THE PEOPLE

8. The objective is to enhance commitment, participation and social responsibility of ASEAN peoples through an accountable and engaging mechanism for the benefit of all, towards a community of engaged and empowered ASEAN peoples who are provided the platforms to participate in ASEAN processes as well as to enjoy the benefits from the various initiatives.

B. INCLUSIVE

12. The objective of this Characteristic is an inclusive ASEAN Community that promotes an improved quality of life, addresses barriers to the enjoyment of equitable access to opportunities by ASEAN peoples, and that promotes and protects human rights.

II. CHARACTERISTICS AND ELEMENTS OF ASEAN ECONOMIC COMMUNITY BLUEPRINT 2025

C.7. Healthcare

ASEAN will continue to promote the development of a strong healthcare industry that will contribute to better healthcare facilities, products and services to meet the growing demand for affordable and quality healthcare in the region. The development of the healthcare industry in the region will include traditional knowledge and medicine, taking into account the importance of effective protection of genetic resources, traditional knowledge, and traditional cultural expressions (GRTKTCE).

- Further harmonisation of standards and conformance in healthcare products and services, such as common technical documents required for registration processes and nutrition labelling;

- Promote sectors with high-growth potential such as health tourism and e-healthcare services, which will not have negative impact on the healthcare system of each ASEAN Member State;

- Further facilitate the mobility of healthcare professionals in the region;
To support this growing sector, the Games for Health Innovations Centre (ALIVE) was launched at the recent Singapore Health & Biomedical Congress. Announcing the centre, which is jointly set up by LKCMedicine and the National Healthcare Group, Guest-of-Honour at the event Minister of State for Health Mr Chee Hong Tat.

### Number of new HIV infections among young people (15-24) 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>20</td>
</tr>
<tr>
<td>Cambodia</td>
<td>230</td>
</tr>
<tr>
<td>Laos</td>
<td>260</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1,100</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1,600</td>
</tr>
<tr>
<td>Thailand</td>
<td>3,400</td>
</tr>
<tr>
<td>Myanmar</td>
<td>6,300</td>
</tr>
<tr>
<td>Philippines</td>
<td>8,100</td>
</tr>
<tr>
<td>Indonesia</td>
<td>24,000</td>
</tr>
</tbody>
</table>

Source: https://aidsinfo.unaids.org/

### % of young people (15-24) with knowledge of HIV (2016)

<table>
<thead>
<tr>
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<th>% Knowledge</th>
</tr>
</thead>
<tbody>
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<td>41.40</td>
</tr>
<tr>
<td>Cambodia</td>
<td>39.60</td>
</tr>
<tr>
<td>Myanmar</td>
<td>16.60</td>
</tr>
<tr>
<td>Philippines</td>
<td>15.05</td>
</tr>
<tr>
<td>Indonesia</td>
<td>11.37</td>
</tr>
</tbody>
</table>

Source: https://ourworldindata.org/hiv-aids
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor knowledge of AIDS prevention among adolescents in Vietnam, Myanmar,</td>
<td>Educational Games on mobile platforms (gamification)</td>
</tr>
<tr>
<td>Philippines &amp; Indonesia</td>
<td>Educational Camps &amp; Campaigns to raise awareness and promote prevention</td>
</tr>
<tr>
<td>Educational outreach programs yet to reach all key populations of HIV such</td>
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<td>as transgenders, homosexuals</td>
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<tr>
<td>Tests &amp; Treatments not well received due to fear of public discrimination</td>
<td>Educational campaigns via Advocates of Key Populations to eradicate fear of public discrimination and raise awareness of ending epidemic of AIDS.</td>
</tr>
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<td>Lack of medical expertise for ART treatment follow up, especially in rural</td>
<td>Online communities moderated by healthcare, mental health and LGBT wellness experts for current HIV patients to feel comfortable in going for treatments</td>
</tr>
<tr>
<td>areas</td>
<td>Data entered in App is secured by Amazon S3 which is well-established and HIPAA compliant</td>
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<tr>
<td></td>
<td>Transcends geographical boundaries via network coverage using Super App for online consultations</td>
</tr>
<tr>
<td></td>
<td>Allows for scheduled reminders, booking of medical appointments</td>
</tr>
<tr>
<td></td>
<td>Super App utilizes AR / VR features to allow patients to further understand (visualize) their conditions</td>
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**HOW:** Super App improves healthcare access via reliable connectivity. App can be expanded to educate users on financial & medical insurance.

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases as well.

3.C Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.

**HOW:** Educational Camps & Campaigns can be extended to other aspects of healthcare services, financing and workforce and empowers individuals through training and development.

3.D Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

**HOW:** Collaborations of ASEAN parties and Tech Hubs enables for development of methods and predictive measures via AI & technology.