EXECUTIVE SUMMARY

Background: In 2013, the strategic use of the antiretroviral therapy (SUFA) initiative of expanding access to HIV testing and treatment was launched in Indonesia to improve the HIV treatment cascade, with the aim of achieving the UNAIDS 90-90-90 targets, and to contribute to the reduction of HIV transmission. To date, in Indonesia there has not been a comprehensive and systematic evaluation of the impact of the initiative, involving the treatment as prevention (TasP) strategy combined with HIV structural interventions on the multiple steps along the HIV continuum of care cascade. Evidence about the impact of the SUFA initiative is crucial for policy makers, as the scaling up of the 'treat all' strategy is underway at present.

Objectives: The objectives of this research was to assess the effect of the SUFA intervention in improving the quantity, and extent of the transition of high-risk people from the population to the clinical stages of the HIV continuum of care cascade. Specifically, this investigation aimed to determine: 1) the problems being represented by the SUFA policy and the likely effect of those representations on SUFA's outcomes; 2) the immediate impact of the SUFA intervention on HIV tests, HIV cases, enrolment in care, eligibility for antiretroviral (ARV), and treatment initiation; 3) the changes in the trends for HIV tests, HIV cases, enrolment in care, eligibility for ARV, and treatment initiation between pre-and post-SUFA implementation; 4) the differences in the rates of enrolment in care, eligibility for ARV, treatment initiation, loss to follow-up (LTFU) and death between SUFA and non-SUFA .

Methods: Two quantitative studies supplemented with a policy analysis were utilised to assess the impact of SUFA along the full HIV continuum of care cascade.

The policy analysis took the approach of 'What is the problem represented to be?' utilizing six questions about how SUFA was problematized. These questions revealed the assumptions underpinning SUFA policy, the history of its development, the omitted problems, and the possible effect and dissemination process of the SUFA policy. The second study was an interrupted time series (ITS) study using a multilevel negative binomial regression model that investigated the immediate and three-year impact of SUFA. Monthly data on HIV tests, HIV diagnosed cases, enrolment in care, eligibility for ARV, and treatment initiation from individuals aged $\geq$ 15 years from 13 cities were collected. The pre-SUFA data regarded as being non-exposed to the intervention were defined as data from 26th Dec 2010 to 25th Dec 2013 while the post-SUFA regarded as being exposed were defined as data from 26th Dec 2013 to 25th Dec 2016. The third study, a retrospective cohort study, estimated the hazard ratio for HIV enrolment in care, eligibility for ARV, treatment initiation, loss to follow up and overall crude mortality using a Cox proportional hazard regression model. The pre-intervention individuals aged $\geq$ 18 years old who were detected as HIV-positive between 26th Dec 2012 and 25th Dec 2013 in Medan and between 26th Dec 2013 and 25th Dec 2014 in Batam, were the non-exposed to the SUFA intervention. In the post intervention period, patients aged $\geq$ 18 years old who were detected as HIV-positive from 26th Dec 2013 to 25th Dec 2014 in Medan and from 26th Jun 2015 to 25thJuly 2016 in Batam were the exposed to the intervention. Participants were followed up for 12 months.

Results: The policy analysis found that the problem representation in SUFA's strategy indicated an assumption that the majority of high-risk people for HIV can be discovered in health facilities. The policy analysis also found that SUFA's strategy indicated the issue that the Indonesian HIV prevention strategy (prior to

SUFA) was insufficient to control the growing HIV epidemic that concentrated in key affected population. As a result of the way SUFA was problematized, inequalities of access to HIV services among high-risk groups occurred and the deeper hidden population who had not yet been exposed to health facilities were inadvertently ignored. The ITS study showed that the rate of HIV tests immediately increased (IRR 1.41; CI 1.25, 1.59; p<0.001) once SUFA was introduced but that the rate of increase in HIV cases detected per HIV tests per month was reduced (IRR 0.77; 95% CI 0.69, 0.86; p<0.001). The ITS also demonstrated that SUFA changed the trends in the rate of HIV tests, HIV detected, enrolment in care, eligibility for ARV and treatment initiation for the three years post implementation. The retrospective cohort study found increased rates of enrolment to care (HR 1.11; 95% CI 1.0, 1.22; p <0.05) and eligibility for ARV (HR 1.13; 95% CI 1.02,1.25; p<0.01) and reduced rates of LTFU (HR 0.73; 95% CI 0.55, 097; p<0.05) in patients who were initiated after one-year of SUFA implementation in Medan and Batam districts. The retrospective cohort study also found no differences between pre-and post- intervention in the median length of time transitioning from HIV detected cases to link to care, from link to care to found eligible for ARV, from eligible for ARV to treatment initiation. However, these time intervals for each of these transitioning events were already relatively short compared to other areas of the world.

Conclusion: Overall, the combination of TasP and the structural intervention of expanding access to HIV tests and treatment improved people's engagement along the continuum of care. However, the success of the intervention was impeded by the HIV testing strategy and the unsolved barriers in the treatment cascade, e.g. long waiting procedure, multiple visits, lack of transportation cost, stigma. Thus, for the current 'treat all' policy strategy to succeed in the scale up

of the intervention across Indonesia, further development of testing and treatment strategies is crucial.