

Cost-analysis of condom distribution to hotspots in Bandung, Indonesia

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BACKGROUND: The HIV/AIDS epidemic in Indonesia is shifting towards the general population. The majority of new infections among the general population occurs among clients of sex workers. Condoms play a key role in reducing the sexual transmission of HIV in Indonesia. However, consistent condom use among Female Sex Workers (FSWs) is barely 35%. KPA Bandung (Komisi Penanggulangan AIDS) implemented a condom distribution program to distribute condoms to FSWs in hotspots and make condoms more accessible. To our findings, no data on condom distribution costs at hotspots in Indonesia is known. Costing analysis of condom distribution at hotspots in Indonesia is necessary to advise KPA on prioritizing interventions and cost reduction.

OBJECTIVE: Estimating the costs of condom distribution to hotspots in Bandung, Indonesia.

METHODS: Interviews with KPA Bandung personnel were used to estimate the costs of the condom distribution program. Condoms are distributed to 61 hotspots in Bandung. These hotspots are street based, community volunteers (home based) and beauty salons. A micro-costing approach, distinguishing capital and recurrent costs, was used. In addition, different (upscale) scenarios were evaluated and the effects of the program were estimated by interviewing heads of hotspots and FSWs.

RESULTS: The unit costs of the condom distribution program are US\$933.21 per hotspot and US\$0.47 per distributed condom. The distributed condoms form the largest cost component (77.47%). Increasing the condom distribution program to all hotspots in Bandung (69 hotspots) will increase the total annualized costs with 10.5%. The overall effect of condom distribution based on interviews with heads of hotspots and FSWs seems to be positive.

CONCLUSION: Based on the analysis, the costs of KPAs condom distribution program (US\$0.47 per distributed condom) are relative low compared to other programs. Interviews about effectiveness indicate a positive effect. More research is needed to make conclusions about the cost-effectiveness of the program.

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Introduction

For several years, the HIV/AIDS epidemic in Indonesia was concentrated among risk groups like injecting drug users (IDUs), men who have sex with men (MSM) and female sex workers (FSWs). The HIV prevalence in 2013 was 39.5% in IDUs, 12.8% in MSM, 7.2% in direct female sex workers and 1.6% among indirect FSWs (direct FSWs are those working in brothels and indirect FSWs are those working in bars and hotels).^(1, 2) However, the HIV/AIDS epidemic in Indonesia is shifting towards the general population. The estimated HIV prevalence among the general population has increased from 0.2% in 2007 to 0.4% in 2013. ^(3, 4) The majority of new infections among the general population occurs among clients of sex workers.⁽³⁾ Female sex workers have high numbers of sexual contacts, this way, transmission to their clients can occur easily. These clients can subsequently transmit the virus to their spouses or other sexual partners, acting like a bridge between FSWs and the general population. ⁽⁵⁾

The current response to the HIV/AIDS epidemic in Indonesia is led by the National AIDS Commission (NAC). They prioritize their response on risk groups and geographical areas with the highest disease burden.⁽³⁾ The goal of this response is to reduce the risk of HIV transmission, to improve the quality of life of HIV patients, and to reduce the social and economic impact of HIV/AIDS. To achieve these goals, the NAC uses multiple strategies such as: increasing ART coverage, increasing the effectiveness of outreach services, and increasing condom use among key populations. ⁽³⁾ The key targets of this response were: to reach 80% of key populations with effective programs, with 60% of them engaging in safe behavior, and 70% funding for the targeted response coming from national sources.⁽³⁾ Since the start of the response, coverage of HIV services has increased to all provinces, priority districts and

cities. There has been a growth in HIV counseling and testing, ART delivery, STI testing and treatment, and mother and child services. However, condom use among risk groups remains low, risk groups face stigma and discrimination when accessing health services, and the quality of services is variable. ⁽³⁾

Condoms play a key role in reducing the sexual transmission of HIV in Indonesia. They protect individuals directly from HIV infection, and protect individuals from other STDs which can facilitate HIV transmission.⁽⁶⁾ The condom acts like a physical barrier by covering the penile glans and shaft. This way it blocks the passage of semen and covers the major portals of exit and entry for STI pathogens.⁽⁷⁾ The effectiveness of consistent condom use in reducing the HIV transmission is estimated around 95%. ⁽⁸⁾ Unfortunately, consistent condom use is limited in Indonesia. Consistent condom use is less than 50% in populations at greatest risk of sexual HIV transmission. Consistent condom use among FSWs is even barely 35%. ⁽³⁾ There are multiple barriers which restrain key populations from using condoms. The first barrier is that condom use could have important financial consequences for FSWs. FSWs report that clients refuse to pay unless sex is unprotected and that clients are willing to pay more for unprotected sex. ⁽⁹⁾ The second barrier is the embarrassment around purchasing condoms, which may keep people from using them.⁽¹⁰⁾ Another barrier is the costs of condoms, which makes that condoms are not affordable for the whole population. ⁽¹¹⁾ Condom distribution programs make condoms more easily available and break down these barriers to responsible sex behavior.⁽¹⁰⁾ When condoms are more readily available and these barriers are broken down, the likelihood that a condom is present at the time of sexual encounter and that it would actually be used increases.⁽¹²⁾

Condom distribution programs can have

different formats. The programs could include only provision of condoms, but also mass media campaigns, distribution of leaflets, and counseling could be included.(10, 13) Other aspects that could differ between multiple programs are the target group and locations where condoms are distributed. The program could consist of a whole range of locations, all focused on a specific target group. For instance: hairdressers and groceries could distribute condoms specific for women, gyms and gas stations for men and cinemas and kiosks for youth.(14) In other countries, condom programs focused on FSWs are already implemented. One effective example is the 100% condom use program in Thailand. This is a collaborative program between local authorities and all sex entertainment stakeholders. The program aims to reduce the sexual transmission of HIV and STIs by assuring high condom use among FSWs and their clients. (15) The goal is the use of condoms 100% of the time in 100% of risky sexual relations, and in 100% of the sex entertainment establishments. (15) The program concentrates on the vulnerability of sex workers, by implementing the rule “No condom – No sex”.(15) This 100% condom program resulted in a highly significant reduction in HIV prevalence among FSWs and their clients. (16)

In Bandung, Indonesia, a condom distribution program is implemented by the KPA (Komisi Penanggulangan AIDS). Here, condoms are distributed to hotspots in the streets, beauty salons and community volunteers. Distributing condoms at these hotspots, makes condoms more accessible for FSWs, which makes it more likely for them to use one. This reduces the risk for clients to get infected with HIV, and breaks down the bridge between FSWs and the general population. This intervention is likely to be fairly cheap compared to other interventions because of the wide range of people that are reached. FSWs have a lot of different clients, and these clients have different other sexual partners. So by

preventing HIV transmission by FSWs, transmission to the general population can be prevented.

Besides condom distribution, KPA facilitates other HIV/AIDS prevention strategies in Bandung (e.g. religious and community based information, education and communication about HIV/AIDS). However, the funding gap for the national HIV program is significant and even increasing. (3) Therefore, KPA needs to prioritize its activities and has to seek for ways to reduce costs. To our findings, no data on costs of condom distribution at hotspots in Indonesia is known. Data on condom distribution programs in other countries are available, however these programs distribute at hotspots as well as other local places and have other target groups besides FSWs.(13) Thus, costing analysis of condom distribution at hotspots in Indonesia is necessary to advise KPA on prioritizing interventions and cost reduction measures. This costing analysis is going to be performed by answering the question: What are the costs of condom distribution to hotspots (street based, community volunteers, and beauty salons), to prevent the HIV transmission in Bandung, Indonesia? This makes the study part of a project of NICHE, within Radboudumc: ‘Priority setting using multiple criteria (PRISMA). This project aims to further develop a priority setting method to support stakeholders to set priorities in the HIV/AIDS response. (17) Additionally, upscale scenarios need to be analyzed, to get an insight in the costs of widely implementing this condom distribution program.

Methods

Study setting

The study was conducted in Bandung, Indonesia, together with the National AIDS commission (KPA Bandung). KPA Bandung facilitates different interventions to prevent the HIV/AIDS spread in Bandung. One of these interventions is condom distribution to hotspots. This intervention is focused on the HIV epidemic among FSWs. The number of FSWs in Bandung is estimated to consist of 1375 direct FSWs (12.6% living with HIV) and 1253 indirect FSWs (0.6% living with HIV). (18)

KPA distributes condoms, 10-15 times a month, to different kind of hotspots in Bandung. In total they distribute to 61 different hotspots: 41 street based hotspots, 18 community volunteers (home based hotspots), and 2 beauty salons. Condoms are distributed in boxes of 144 pieces. The amount of condoms distributed per hotspot is variable and depends on the amount of FSWs that work at the hotspot and the amount of clients that visit the hotspot. In 2015, the amount of condoms distributed per hotspot differed from 288 to 12,960. The frequency of distribution is variable as well. Each hotspot keeps KPA informed about the number of condoms they have used, they have left, and when they need new condoms. This way, KPA knows when to distribute condoms at which hotspot.

Each hotspot has a head of hotspot. This person is in charge of the hotspot and keeps the safety of the FSWs. KPA provides the condoms to the head of the hotspot. These heads of hotspots can decide themselves how they further distribute the condoms to their FSWs. Some distribute one box of condoms to one FSW, others distribute 1-10 condoms per FSW.

KPA distributes condoms using a motorbike. With this motorbike, one employee of KPA visits approximately 3 hotspots at a time. Here the employee distributes condoms, has a drink and a cigarette with the head of hotspot, and

has a small talk about the intervention. Another part of the condom distribution program is the provision of training to the heads of hotspots. During this training, the heads of hotspots are informed about the basics of HIV and STIs, the best way to distribute condoms, and the best way to communicate with the FSWs. In 2015, 2 of these trainings took place (July and November). Each training consisted of 50 participants.

KPA is funded by 2 different donors: APBD (local budget government) and the Global Fund. The funding of the APBD is directed to programs focused on the general population, while the funding of the Global fund is directed to programs focused on high risk groups. Since the condom distribution program is aimed at FSWs, this program is funded with money from the Global Fund.

Data collection and cost estimation

This study is based on data from 2015. Costs were analyzed according WHO's "Cost analysis in primary health care, A training manual for programme managers".(19) Micro-costing was used to define the costs from the health system perspective. All costs were estimated by interviewing KPA personnel and using KPA records.

Costs of the condom distribution program consisted of two elements: capital costs and recurrent costs. Capital costs are inputs that last for more than 1 year. Recurrent costs are inputs that occur repeatedly.(19) Capital costs included buildings, furniture and equipment, vehicle, and startup training. Market prices were used to estimate the building, vehicle, furniture and equipment costs. These estimations were done with help of KPA personnel. Startup training costs were estimated by interviewing KPA personnel who participated in the startup training. Capital costs were subsequently annualized on the basis of the lifetime of the capital items, using a 3% discount rate.(20) Recurrent costs

included building and vehicle maintenance, operational inputs (such as office supplies, internet, TV, and telephone), supplies (condoms), recurrent training, and personnel. Costs of maintenance and recurrent training were estimated by KPA staff. Operational inputs and supplies (condoms) costs were based on actual prices listed in KPA records. Personnel costs were estimated based on the actual salaries. These results were then multiplied by the proportion of time allocated to the condom distribution program.

A sensitivity analysis was performed to examine the effects of uncertainties in parameters. The analysis is performed for the price of the recurrent supplies costs (condoms that are distributed) and for the allocation of the vehicle capital costs. Only those 2 expenses are taken into account for the sensitivity analysis because they constitute the largest cost share. The proportion of the other cost components are low. Therefore, we assumed that an over- or underestimation of these cost components, would not result in huge differences in total annualized costs. The price of condoms was varied by \pm US\$0.10 per condom. The current situation is a price per condom of US\$0.36. The vehicle capital costs was varied by \pm 10% allocation time. The current situation is an allocation of 35.18%. The change in total annualized costs was calculated.

The costs of the condom distribution program were calculated for 5 different scenarios. Scenario I is the current situation (61 hotspots). Scenario II is condom distribution to all hotspots in Bandung (69 hotspots). Scenario III is distribution only at street based hotspots (41 hotspots), scenario IV is distribution only at community volunteers (18 hotspots), and scenario V is condom distribution only at beauty salons (2 hotspots). This distinction is made because there could be a difference in effectiveness between these different hotspots. When a cost-effectiveness analysis is going to be performed, it is important to have distinguished cost data. The calculations of different scenarios were based

on the number of condoms distributed per sort of hotspot. All costs were measured in Indonesian Rupiah, and converted to US\$ using the exchange rate of 31 December 2015. In addition data was collected on the effectiveness of the condom distribution program, by interviewing FSWs and heads of hotspots. These interviews were performed at 3 street based hotspots and 1 home based hotspot with a community volunteer.

Assumptions

Several assumptions have been made to complete the cost data. First of all, the data is based on interviews with KPA personnel. This means that the data is based on expert opinions. It was assumed that the knowledge of these experts was sufficient enough to give accurate information. The allocation of building, equipment, furniture, and operational costs is calculated using the time that the building is used for the condom distribution program. The building is only used for the program during 4 weekly meetings and 1 monthly meeting. The execution of the program takes place at the locations of the hotspots. Weekly meetings take 3-5 hours, and monthly meetings 1-2 hours. In total, the meetings have a duration of 17.5 hours per month. Based on a 40 hours working week, the building is used 11% of the total time for the condom distribution program. The vehicle that is used by KPA for the condom distribution program is a private motorbike owned by KPA personnel. To calculate the costs of this vehicle, we assumed that the vehicle is KPA property and therefore has a working time of 40 hours per week (160 hours per month). The total time the motorbike is used for the condom distribution program is 56.25 hours per month, which makes the allocation 35.18%. By using this assumption, the data can be translated to other clinics or institutions, which would need a vehicle to distribute the condoms. The building costs of the KPA office are unknown by the KPA, because the building is government property.

To estimate the building costs, the costs of a similar building in the same street are used. Via this similar building, the unit price per square meter could be calculated and the total costs of the KPA building could be estimated. To calculate the costs of scenario II (condom distribution to all hotspots in Bandung), there is assumed that there are 8 more hotspots in Bandung were KPA can distribute condoms. This assumption is based on information from KPA Bandung. Lastly, we omitted the cost of utilities (water and electricity).

Results

Cost of condom distribution program

Table 1 summarizes the results of the costing analysis based on the health system perspective. The total costs of the condom distribution program are almost US\$57,000 (table 1). Dividing these total costs by 61 hotspots results in a unit cost per hotspot around US\$933.21. Dividing the total costs by

the total number of condoms distributed (121.536) results in a unit cost per condom distributed of US\$0.47 (table 2). Almost 18% of these costs consist of capital costs, and 82% consists of recurrent costs. The costs of the supplies (condoms distributed) is the largest component of the condom distribution program (77.47%) (table 1).

Not all expenses are directly paid by KPA Bandung. Building costs (capital and recurrent) are paid by the government. Furthermore, start-up training and supplies are paid by KPA Province. As a result, a distinction can be made between costs from the provider perspective and costs from the health system perspective (table 2). Adding up the costs incurred by the medical provider (KPA Bandung) makes the total annualized costs from the provider perspective around US\$11,000. The unit costs per hotspot from the provider perspective are US\$750.35, and the unit costs per condom distributed US\$0.09 (table 2).

Table 1 Annualized costs of condom distribution program

| Type of cost | Funded by | Annualized costs (US\$) | Proportion |
|------------------------------|--------------|-------------------------|----------------|
| <i>Capital</i> | | | |
| Vehicle | KPA Bandung | 8,361.81 | 14.69% |
| Equipment | KPA Bandung | 183.70 | 0.32% |
| Buildings | Government | 1,490.35 | 2.62% |
| Startup training | KPA Province | 166.06 | 0.29% |
| Total capital costs | | 10,201.92 | 17.92% |
| <i>Recurrent</i> | | | |
| Personnel | KPA Bandung | 132.76 | 0.23% |
| Supplies | KPA Province | 44,098.69 | 77.47% |
| Vehicles | KPA Bandung | 1,190.93 | 2.09% |
| Building | Government | 15.97 | 0.03% |
| Training | KPA Bandung | 986.94 | 1.73% |
| Operational | KPA Bandung | 298.87 | 0.53% |
| Total recurrent costs | | 46,724.16 | 82.08% |
| Total | | 56,926.08 | 100.00% |

Table 2 Costs based on different perspectives

| Type of perspective | Costs medical provider (US\$) | Costs government/donor (US\$) | Total costs (US\$) | Unit costs per hotspot (US\$) | Unit costs per distributed condom (US\$) |
|---------------------------|-------------------------------|-------------------------------|--------------------|-------------------------------|--|
| Provider perspective | 11,155.01 | . | 11,155.01 | 750.35 | 0.09 |
| Health system perspective | 11,155.01 | 45,771.07 | 56,926.08 | 933.21 | 0.47 |

Sensitivity analysis

The results of the sensitivity analysis are shown in table 3. Changing the condom price by \pm US\$0.10 per condom, results in a decrease or increase of costs of 21%.

An increase of US\$0.10 per condom results a unit cost per condom of US\$0.57. A decrease of US\$0.10 per condom results in a unit cost per condom of US\$0.37 (table 3).

Changing the vehicle allocation by \pm 10%, results in a decrease or increase of costs of 4%. An increase of 10% allocation results in a unit cost per condom of US\$0.49. A decrease of 10% allocation results in a unit cost per condom of US\$0.45 (table3).

Table 3 Sensitivity analysis

| | Total annualized costs (US\$) | Unit cost per hotspot (US\$) | Unit cost per condom (US\$) | % compared to current situation |
|-------------------------|-------------------------------|------------------------------|-----------------------------|---------------------------------|
| Current situation | 56,926.07 | 933.21 | 0.47 | 100% |
| Condom price +US\$0.10 | 69,074.91 | 1132.38 | 0.57 | 121% |
| Condom price -US\$0.10 | 44,767.44 | 733.89 | 0.37 | 79% |
| Vehicle allocation +10% | 59,302.94 | 972.18 | 0.49 | 104% |
| Vehicle allocation -10% | 54,549.21 | 894.25 | 0.45 | 96% |

Results of different scenarios

Table 4 summarizes the results of the different scenarios. Fixed costs consist of all capital costs and recurrent building, training, and operational costs. Variable costs consist of recurrent personnel, supplies, and vehicles costs. Increasing the condom distribution program to all hotspots in Bandung (69) (scenario II) would increase the total

annualized costs with 10.5% compared to the current situation. However, more hotspots and therefore more FSWs are reached with the program when the condom distribution program is implemented in all hotspots in Bandung. Distributing to only one kind of hotspot (scenario III-V) would decrease the total annualized costs, but would increase the unit costs per hotspot.

Table 4 Costs for different scenarios

| Scenario | Number of hotspots | % compared to current situation | Fixed costs (US\$) | Variable costs (US\$) | Total annualized costs (US\$) | Unit costs per hotspot (US\$) |
|--------------|--------------------|---------------------------------|--------------------|-----------------------|-------------------------------|-------------------------------|
| Scenario I | 61 | 100.00% | 11,503.70 | 45,422.38 | 56,926.08 | 933.21 |
| Scenario II | 69 | 113.11% | 11,503.70 | 51,377.25 | 62,880.95 | 911.32 |
| Scenario III | 41 | 62.80% | 11,503.70 | 28,525.25 | 40,028.95 | 976.32 |
| Scenario IV | 18 | 24.17% | 11,503.70 | 10,978.59 | 22,482.29 | 1,249.02 |
| Scenario V | 2 | 13.03% | 11,503.70 | 5,918.54 | 17,422.22 | 8,711.11 |

Scenario I: Current situation

Scenario II: Condom distribution to all hotspots in Bandung

Scenario III: Condom distribution only at streets

Scenario IV: Condom distribution only at community volunteers

Scenario V: Condom distribution only at beauty salons

Effectiveness of the condom distribution program

The effect of the condom distribution program based on interviews with 4 heads of hotspots seems to be positive. All heads of hotspots indicate an increase in condom use among FSWs. The effect of the condom distribution program based on interviews with 7 FSWs seems positive as well. All FSWs think positive about the condom distribution and indicate that they have easier access to condoms now the condoms are distributed by KPA. FSWs were very willing to receive the distributed condoms. Although, FSWs and heads of hotspots indicate that the quality of condoms is too low. As a result, FSWs experience pain while using these condoms and have to use lubricants in addition to make the sex comfortable.

Discussion

The costs of KPAs condom distribution program are US\$933.21 per hotspot and US\$0.47 per distributed condom. Estimating costs of 7 other condom distribution programs in different developing countries resulted in a cost range of US\$0.72 to US\$3.03 per distributed condom. (21) This shows that the costs of KPAs condom distribution program (US\$0.47 per distributed condom) are relative low compared to other programs. (21)

This study shows that condoms constitute the largest cost share. This shows that the largest part of the funding available for this program, actually is spend on the condoms that are distributed. Because condoms constitute the largest cost share, they offer potential for efficiency gains. However, FSWs and heads of hotspots indicated during interviews that the quality of the distributed condoms is too low. When costs of condoms are going to be reduced, the quality of the condoms has to be taken into account. When due to cost-savings, the quality of condoms reduces, it will be even more uncomfortable for FSWs to use the condoms. Condoms should be attractive and functional to ensure consistent condom use. (14) Therefore as a result of lower quality, the condom use among FSWs would probably decrease, which makes the condom distribution program less effective. Cost-savings on condoms would be a suitable solution, as long as quality of condoms is warranted.

The sensitivity analysis shows the effects of an under- or overestimation of the 2 expenses that constitute the largest cost share. Data about the price of condom distributed and the allocation of the vehicles is based on expert opinions. However, it is possible that this data is under- or over estimated. Therefore, we assumed a price range of condoms of \pm US\$0.10 of the estimated price in the current situation (US\$0.36). This results in a range of total costs of \pm 21% of the calculated total

costs of the current situation. The assumed range of allocation of the vehicles is \pm 10% of the estimated allocation in the current situation (35.18%). This leads to a range in total costs of \pm 4% of the calculated total costs of the current situation. Especially the change in condom price had a major impact on the total annualized costs, due to the large cost share of condoms. This means that when there is an over- or underestimation in condom price, this could have a substantial impact in the calculated total annualized costs. However, because the condom price is based on expert opinions, it seems unlikely that the condom price in reality would differ a lot from the used condom price.

KPA Bandung is open for upscaling the condom distribution program to all hotspots in Bandung. To expand to all hotspots in Bandung, KPA has to distribute condoms to 8 more hotspots. Before condoms can be distributed to these hotspots, KPA Bandung has to perform a survey at each hotspot, to estimate the amount of condoms that each hotspot needs. In addition, KPA Bandung has to write a proposal to the KPA Province to ask for permission to distribute condoms to new hotspots.

Upscaling the condom distribution to all hotspots in Bandung would increase the total annualized costs. However, because more FSWs will be reached with the program, the effectiveness of the program will increase as well. In addition, there will be efficiency gains due to a decrease in unit costs per hotspot.

The effectiveness of the condom distribution program seems to be positive. Both FSWs and heads of hotspots indicate high condom use after the implementation of the program. Heads of hotspots indicate that the condom use has increased since the condoms are distributed. However, FSWs state that the condom use before the program was already very high. The results of condom use before the program differ between interviews with heads of hotspots and FSWs. Furthermore,

only 4 heads of hotspots and 7 FSWs are interviewed about the effectiveness of the program. Therefore no strong conclusions can be drawn out of these results, although it seems like condom use has increased due to the condom distribution program. In addition, FSWs indicate that they have easier access to condoms now the condoms are distributed, which is a positive result of the program. Further research focused on effectiveness of the condom distribution program is recommended to, ideally, perform a cost-effectiveness analysis.

Another part of condom distribution programs in other literature is giving information and education about condom use and HIV/AIDS. (22, 23) KPA Bandung provides education for the heads of hotspots via organized trainings. FSWs however do not receive any information or education from KPA. Nevertheless, during interviews all FSWs indicate that they receive enough information about condom use and HIV/AIDS. They obtain this information from their head of hotspot and/or a private doctor. Therefore it seems not necessary for KPA Bandung to provide additional information to FSWs. KPA Bandung can continue the condom distribution program in the same format as it is performed now.

Study limitations

This study has a number of limitations. First, this study has evaluated a specific condom distribution program implemented by KPA Bandung, which may hamper the generalizability of the results. Cost data can vary between different organizations and specific costing studies in other settings. However, the conceptual and methodological framework can be applied in other settings similar to Bandung. Second, there had to be made several assumptions to complete all data. This is partially due to the fact that cost data of one year is obtained within 2 months. Especially assumptions about the allocation of capital

and recurrent costs had to be made. These assumptions were based on expert opinions, yet there is still a possibility that the data is over- or underestimated. Third, our study only included condom distribution to hotspots, focused on FSWs. The evaluation of condom distribution to other locations, such as the Health Department and hospitals was beyond the scope of our study. Further research has to be performed to include these costs as well. Fourth, for the upscale scenario, start-up costs for new included hotspots are not taken into account. The assumption is made that KPA Bandung can include all hotspots in Bandung, using the same quantity and allocation of equipment, building, and vehicle.

Conclusion

Condom distribution to hotspots in Bandung is a low-cost program compared to other condom distribution programs. Scaling up the condom distribution program to all hotspots in Bandung would increase total annualized costs, but would increase effectiveness as well. Based on interviews with FSWs and heads of hotspots, the program seems to be effective. However, further research is needed to draw conclusions about effectiveness and cost-effectiveness.

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