Autonomous Contraception Dispensing Stations

Launched on 5 August 2024
Closed on 20 October 2024
132 Registered Solvers
56 Submissions
44 Quality Submissions
4 Winners
Prize Money: US$15,000

Overview

The **International Rescue Committee** (IRC), the Seeker for this Wazoku Crowd Challenge, is launching a project to **improve access to contraceptive products for women and girls on their migration journeys**, without requiring facility-based care or health provider screenings.

In 2020, according to the WHO, more than 135 million migrant women and children were on the move across the globe: many of whom are fleeing crisis and face ongoing barriers to receiving clinical care. Access to contraception is a critical issue for these migrants, but often there are multiple barriers to accessing the products and medicines that prevent unintended pregnancies and the impacts on their health.

Providing innovative solutions to improve access to contraception and contraceptive methods would empower female refugees and displaced persons on the move to take control of their sexual and reproductive health. The IRC is scoping the creation of autonomous contraception dispensing stations in convenient locations along migratory routes: however, there are numerous **technological**, **practical/mechanical**, and **behavioral difficulties** to overcome in order to create useful, functional solutions.

This Challenge has a total award pool of US$15,000. The IRC is looking for ideas, designs, solutions, and technologies around **three key categories of a sustainable, durable contraception dispensing machine solution**:

- **Technological**: enabling self-managed medical eligibility screening for contraceptive methods; supporting cash and non-cash payments to widen access; including internal stock tracking and alerting for product management.
- **Practical/Mechanical**: temperature regulation of the machine to keep products at storage temperatures (between 59 - 77° Fahrenheit / 15 - 25° Celsius); considerations of how to power the machine even in remote locations; theft protection of both products and the machine; location of the machine across migratory routes; autonomy and operation of the machine and how it dispenses products.
- **Behavioral**: ensuring discretion and privacy for those using the machine to avoid stigma (including its location); providing consideration for how displaced people may use and reuse the products of the machine; including a description of the user experience for a migrant visiting the machine.

Please note: if your solution or idea doesn't quite fit these criteria but will help to inform a project to plan, create, and scale discreet contraceptive dispensing machines, please submit your solution and it will be evaluated. Any improvement to the overall problem will be considered in this IRC Challenge.

By taking part in this Prize Challenge *you are granting the International Rescue Committee (IRC) a right to use but not own your submitted information.*

This Prize Challenge requires a written proposal to be submitted and the total guaranteed award of $15,000 USD will be paid, with awards to at least one submitted solution. There is no assignment of IP Rights with this challenge.

In this Prize Challenge, Solvers may:

- *Submit ideas of their own*
- *Submit third-party information that they have the right to use and further, the authority to convey to the Seeker this right with the right to use and develop derivative works*

- *Submit information considered in the public domain without any limitations on use*

Submissions to this Challenge must be received by 11:59 PM (US Eastern Time) on October 20, 2024.

- Login or register your interest to start solving! -

About the Seeker & Eligibility

The **International Rescue Committee (IRC)** is a global humanitarian aid, relief, and development nongovernmental organization. Working in more than 40 countries and over 20 U.S. cities, the IRC helps those affected by humanitarian crises to survive, recover, and rebuild their lives.

IRC's **Airbel Impact Lab** aims to find and advance breakthrough solutions, delivering them at scale – with an emphasis on solutions that can shape policy and practice around the world and not only in local contexts.

The IRC is supported in this project by SeaFreight Labs (www.seafreightlabs.com), an open-innovation consultancy using global challenges to cost-effectively deliver breakthrough innovation. Participation in this project is a direct result of SeaFreight Labs membership in the Pledge 1% movement.

The **employees of the International Rescue Committee (IRC)**, as well as their spouses or partners and their relatives up to the fourth degree, **are welcome to participate but are not eligible for awards in this Challenge.**

Find out more about participation in Wazoku Crowd Challenges.

The Challenge

Background

Across the world, there is a lack of access to contraceptive methods for migrants, forcibly-displaced persons, and refugees along their migratory journey: leading to a higher rate of unintended pregnancies and, with this, higher risks for pregnant women on the move.

For example, over 7.7 million people have fled Venezuela in one of the world's largest displacement crises. More than half of the 1.5 million displaced Venezuelan women and girls living in Colombia and those crossing through the country lack access to the national health system -

and therefore lack the ability to access prescribed or provided contraceptives. There are also other factors: the direct and indirect costs of visiting healthcare facilities, stigma around contraception, and the lack of quality of care for migrants in general.

Without access to emergency contraception and other self-managed contraceptive methods like oral contraceptive pills, condoms, or self-injectables, this population and other vulnerable women lacking access cannot self-manage their own contraception and prevent unintended pregnancy. The IRC is aiming to further support its country programs by exploring the prospect of increasing access to contraception and hygiene products. This will expand the reach of its provision of contraception methods, covering further areas in migratory corridors and further facilitating self-managed contraception. Expanding support through simple, accessible methods will help the IRC and other international NGOs to do more for a smaller budget.

Self-managed contraceptive methods that do not have to be administered (provided, prescribed, and/or screened for by a health provider or at a facility) have a large role to play to empower migrant women and girls to have control over their family planning. At the moment, these methods are still mostly available at the healthcare facility or pharmacy level. This means that they still require an interaction with a healthcare provider, even though they are available over-the-counter (OTC) for purchase or administering in many countries. Purchasing of self-managed contraceptives - which also requires an economic means that may not be available to all migrants - tends to happen on an ad-hoc basis (when and if they need them), with limited cycles at a time, and these are often not able to be purchased at convenient locations across migratory corridors.

Global guidelines recommend that once a woman or girl is deemed medically eligible for a product, they can be provided with advanced supply of the product to ensure continuation of the method and longer periods of protection against unintended pregnancy (e.g. 12 months supply of oral contraceptive pills, 1 year supply of self injectables, emergency contraception for future use and not just on demand). At the moment, migrant women and girls have to access contraception and contraceptive methods as and when they can, with the focus on the present prevention of unintended pregnancy - not future adherence to the method and long-term prevention.

Medical eligibility screening is a core part of administering contraception worldwide. A client can self-screen themselves for many medical conditions

for example, smoking, obesity, known history of breast cancer, known heart conditions, postpartum status, etc. However, one key diagnostic activity that needs to be done to rule-out hypertension , a highly prevalent condition in most adults, is blood pressure evaluation. In Colombia, you can access free or low-cost blood pressure checks in many local pharmacies: helping to determine whether a woman or girl is eligible for contraceptive methods that can cause hypertension. This would help to determine their eligibility for certain products.

In some countries, contraceptive method access projects are beginning to be trialed by being made available in public locations, through discreet, self-managed dispensing stations or vending machines. In the United States, some universities have made emergency contraceptives and medicines (differing from most contraceptive methods in that it is used after sex to prevent pregnancy) available on college campuses to protect and safeguard student health. In Kenya, Population Services International (PSI) has tested contraceptive vending machines for youth, with machines set up in private but accessible locations and stocked with contraceptive methods. One female user in Kibera, Kenya, reported: *"It's quite private, no one knows what you are doing unlike the free condom dispensers that are out in the open. With this one, you can get a condom or sanitary towel privately."* The PSI machines also had payment available through a mobile payment service to create cashless access to these materials.

These services differ slightly from a purely contraceptive-focused machine, in that they included a variety of health and hygiene products: including pregnancy tests, menstrual hygiene products, oral and bodily hygiene products, and vitamins. Additionally, these machines housed and allowed for the purchase of contraceptive products - but they didn't solve for the medical eligibility aspect. Clients served by these PSI and campus machines could access the methods, but the machine itself did not help the user to understand **what they were eligible for/was safe to use**, without needing to visit a doctor or health provider first.

Improving the access and availability of self-managed contraceptive methods - while supporting the agency and privacy of women and girls to access them - would begin to help migrants to take control of their sexual and reproductive health (SRH) and to address increased instances of unintended pregnancies in migrants worldwide.

The Challenge

In this Challenge, the IRC is looking for ideas, designs, and solutions on how to create, manage, and scale a discreet, autonomous contraception dispensing station. This dispensingmachine tool would have two main functions:

- Help migrant women and girls to **self-screen themselves for which contraception method they could be eligible for**;
- and to **provide access to the contraceptive(s)**, either for free or through payment.

In order to fuel this project, the IRC is running an exploratory Challenge, welcoming everything from early-stage ideas, industrial design concepts, suggested technologies and providers, or mature partner proposals of potential collaboration. In order to focus the ask, the IRC is primarily looking for ideas in**three key categories** of a long-term contraception vending machine solution:

- **Technological**: Medical Screening, Payments, and Stock Tracking.
- **Practical/Mechanical**: Temperature Management, Power, and Operation.
- **Behavioral**: Privacy/Discretion and Location, Usage, and UX.

Please apply your solution to one or more categories, depending on its applicability.

If you have an idea, concept, or design that can also help to solve other problems around a potential contraception dispensingmachine project - please submit them! The IRC is open to Solver's innovative approaches, research into how this is being managed elsewhere, or creative combinations of methods to bring this concept to reality.

Technological

Medical Screening for Eligibility

In order to create a vending machine solution that best serves migrant populations, the IRC would like to discover ways to enable **medical eligibility screening**, self-managed by the user and supported by the machine itself.

Screening for contraceptive methods requires a consideration of multiple factors, with this WHO guidebook a starter for eligibility, but the most

important of which require a low-tech diagnostic procedure is blood pressure. Hormonal contraceptives can increase blood pressure, particularly 'combined oral contraceptives' (COCs), so it is important to screen for a healthy blood pressure to mitigate any risk of hypertension or other cardiovascular issues.

In order to successfully screen migrant women and girls, the IRC is seeking ideas on how the machine might **measure a person's blood pressure**, and **help the individual to self-screen for other eligibility concerns** such as obesity, a history of heart disease, migraines, postpartum period, smoking use, etc.

The IRC welcomes proposals on how the hardware and software of the machine could be set up to input measurement or take measurement of the client's blood pressure, use AI or conversational chatbots to assist a patient through the process, or use other technologies to enable screening for medical eligibility and the subsequent suggestion of which contraceptive method the client should use.

Outside of the technological side, this machine might be placed close to or within a local pharmacy - usually in population centers along migratory routes. As mentioned in the background, many pharmacies offer blood pressure screening for low or no cost. However, in order to increase the number of areas that these dispensing machines might be placed in, the IRC is looking for novel ways that this concept/solution could determine medical eligibility without provider intervention or pharmacist assistance.

Please note - alongside technological methods to effectively screen a client for these criteria, your idea/design/solution/technology could also utilize low or no-technology methods: helplines in or on the machine's design to health provider facilities in the region, help guides in multiple languages of relevance that explain the machine's purpose and use, etc. The IRC appreciates novel, innovative, and exciting technological approaches, but Solvers should also take into account simple and low-budget approaches, too.

Payments

The IRC would like to initiate this project for migrant women, but that does not mean that these machines can solely be used by this client population. If the autonomous vending machine had an element of payment, whether per use or by subscription, then other populations along migratory

corridors could benefit from increased access and accessibility of contraceptive methods.

If the machine could support cash, card, and non-cash payments it would improve the machine's 'stickiness' in a region. For example, humanitarian implementers like the IRC could distribute access cards, coins, or codes, and migrant women could use them to access contraceptive methods if they do not have their own funds to do so. Ideas around this topic should consider that the primary population it will serve is migrants and forcibly-displaced persons. Ideas for how to ensure these people are the primary user and the machine is designed to facilitate their access in particular would be welcomed in this Challenge. The IRC would also be interested in Solver approaches for a system that could enable cashless access to these methods through the machine - as mentioned by codes, cards, or other means of access.

One thing to note - in PSI's trial of a cashless system for their vending machine pilot, the machines used mobile M-PESA cashless technology. This technology required immediate confirmation of the mobile payment transaction having gone through for the products to be issued. People experienced delays and frustration with these machines due to this issue. PSI's technology partner investigated and determined that the payments weren't processed promptly due to cellular congestion on the 2G network of operation. Solvers should consider these real-world constraints, bearing in mind the prevalence of low-to-no signal areas along migratory corridors, when submitting ideas around the purchase and payment part of the technological category.

Connectivity, Stock Tracking, and Alerting

In order to keep machines that are potentially in remote locations stocked with contraceptive products, and to deal with the considerations around expiry date that are relevant to many methods (particularly emergency contraceptives like Plan B), the IRC would like to receive ideas, designs, and existing technology suggestions around stock tracking.

Being alerted to how much stock is left in a machine, whether a certain stock is reaching its expiry date, or when a method is completely run out would enable the IRC and partner organizations to refill and replenish autonomous contraception vending machines only when necessary, rather than on regular rounds. This would give data and details about clients, their usage, and for the IRC to reach out to donors/partners/pharmacies to organize refilling and replenishment of contraception products.

Please note, that many areas where these machines could be placed would have no WiFi or be in low signal areas. How would you solve for internal stock tracking, alerting when stocks are low or out, and give details on usage of the machine and its contents? The ideal would be for an IRC provider in Bogotá, Colombia to be able to know the stock and usage of a machine in Cali, for instance.

Additionally, Solver ideas on how to alert clients to other machine locations along a particular migratory corridor when products are not available are appreciated.

Practical/Mechanical

Temperature Regulation

Many contraceptive methods are medicines and therefore require storage at certain temperature operating ranges in order to remain effective. The IRC requires that any ideas, designs, technologies, or solutions that constitute the dispensing machine take into account that these methods should be able to be stored between 59 - 77° Fahrenheit / 15 - 25° Celsius, regardless of global location.

For instance, the IRC operates in colder climates like the United Kingdom and warmer climates like Lebanon - so any vending machine design should be able to operate within these ranges no matter the outside temperature. Insulation and cooling methods are likely approaches, and the IRC welcomes technologies or low-tech solutions to achieve this temperature range.

Power

The IRC's ideal end result is to install these vending machines in convenient migrant stop-overs along migratory corridors. These could be shelters, bus stations, public bathrooms, or any manner of public space accessible by migrants that has an element of privacy. Often these places may be connected to the local grid - but that will not always be the case and it may not give consistent service. In LATAM, for instance, power outages in Venezuela may differ in length from those in Colombia. Bus stations, in particular, could be low-or-no resource areas where the vending machine would be useful, if it can be powered.

The IRC is soliciting ideas, technologies, approaches, designs, and existing market solutions to power this autonomous vending machine. Please bear

in mind, should you use renewables to power your design, that the vending machine will have no 'owner' or 'operator', other than the humanitarian group who helps to fill it with supplies. Solar panels on the top of a dispensing machine might work well in some geographies and core locations, but not for others.

Solvers should consider two use cases for this machine idea in relation to power: connectable to power from the local area, and self-sustaining (renewable, battery, solely mechanical) to back up its operation. The more that your design for this device can stand on its own when it comes to power, operation, recharging (if applicable), or its mechanical features, the more likely the IRC will be to award your solution.

Similar to the other sections, lo-fi solutions are welcome in this subsection of the Practical/Mechanical category. If your solution is entirely mechanical without need for power at all, for instance, that could be one approach of value: but the IRC welcomes all approaches.

Theft Protection

A well-stocked machine in high traffic areas might become a target for theft of supplies and of the machine itself. Initially, the IRC would aim to locate these machines in population centers, even if they may be small villages, which give the oversight and safety for users and operators who may be restocking products. These locations might be: inside and nearby pharmacies, for proximity to stock and to blood pressure eligibility screening; in shelters; soup kitchens/food distribution centers where providers from NGOs operate; or borders/crossing points - where there are other services (information points, water stations) that could serve as a strategic location for these machines.

The IRC is aware that no machine is theft-proof, but elements of theft prevention and protection would be welcome in your submissions of ideas, designs, and technologies.

Autonomy and Operation

This machine is intended to work under its own steam, with no dedicated operator or support team beyond refilling and replenishment. Where possible in your submission, please give reference to how the machine operates autonomously as far as possible - from set-up, through to use and restocking, all the way through its lifecycle. There may be partner or

pharmacist assistance with the restocking and provision of supplies, but each machine should stand on its own other than refilling and replenishment.

Behavioral

Information

As with any dispensing machine, it is helpful to show to potential users the contents of the machine, as well as their descriptions. One thing to note with contraception methods, linked to the medical screening section: not all women and girls are eligible/suited to all contraception methods. For instance, for obese clients, many contraceptive methods are less effective and e.g. subdermal implants have limited time and effectiveness.

The machine, while located in a population center, could provide clients and users the information about where to access medical screening and checking eligibility for certain products. This information about the closest pharmacy, nearest other dispensing station, and health information about types of methods could be indicated on the machine's structure/help text/branding. Or, the machine itself could be located next to pharmacies to enable ease of access to this evaluation.

To support lo-fi solutions, too, the IRC would be interested in more analogue ways to self-screen. For instance, tiles for each eligibility concern (blood pressure, comorbidities) that the user physically flips/turns to show what they would/would not be eligible for. Innovative solutions with regards to information, education, and eligibility are welcomed.

Discretion, Privacy, and Location of Machines

The IRC intends to place these machines in high-traffic areas along migratory routes worldwide. Solver suggestions on where would be beneficial to place the dispensing/vending machines are appreciated, but would need to be resourced by clear reasoning and descriptions as to why one location is better than the suggested placements of bus stations, shelters, and bathrooms. Any suggested location must ensure the privacy and discretion that client users may access the machine without stigma, judgment, or risk.

One method could be to stock all kinds of products in the machine, creating a 'Mindfulness' or 'Wellness' vending machine - that also dispenses contraceptive methods. That way, users can approach the machine and purchase/receive their products without judgment. One way to enable this could be to house all products in plain packaging, with no identifiers as to what is inside.

The IRC is interested in ideas, concepts, designs, and solutions that can achieve the privacy and discretion part of this project, without compromising safety of the user or the effectiveness of the machine.

Usage, UX, and Reuse

Any design or technological solution for contributing to the vending machine should take into account how clients might use and reuse the machine. The machine should be easy to use, so any constituent and component solutions as part of the concept should similarly be user-centric, clear, and direct about the purpose of the machine.

Migrant women and girls using the machine may also want to stock up on the contraceptive product, to support their ability to manage their own health on their migratory journey: would your design for the machine prevent repeated purchasing? How?

The actions of a wide variety of clients worldwide cannot easily be distilled into this Challenge, but any ideas on your technological or innovative solution should also take into account innate human behavior and how - after being given access to self-managed contraception - they may interact with the machine and its contents.

The overarching aim of this Prize Challenge is to build a resource **library of promising ideas, suggestions, and concepts of the autonomous contraception vending machine's technological, practical/mechanical, and behavioral operation**. Solvers are encouraged to provide enough information to the evaluators in order to merit award, with the IRC open to further discussions/volunteer partnership with any Solver interested in pursuing the concept further.

Solution Requirements

The IRC is primarily interested in solutions with the potential to meet one or more of the following requirements:

1. **Technological** - addressing: Medical Screening; Payments; and/or Connectivity and Stock Tracking.
2. **Practical/Mechanical** - addressing: Temperature Management; Power, Theft Management, and/or Operation.
3. **Behavioral** - addressing: Information, Privacy/Discretion and Location; Usage; and/or UX.

The IRC welcomes proposals to one or more of the three categories, and proposals that embrace innovative integrations across the categories are also encouraged.

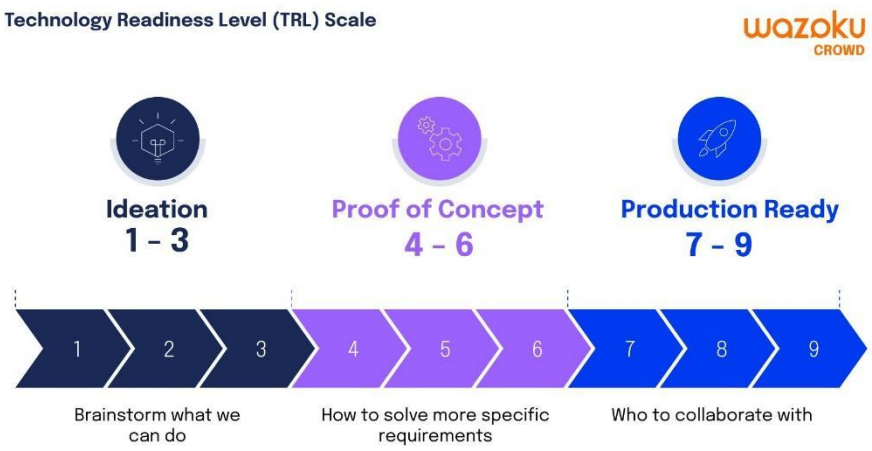
Solvers are asked to provide a detailed description of your proposed idea, solution, technology, or product, including:

- Type of solution or idea
- Solution specifications and how it meets the listed requirements of one or more of the categories
- Cost of solution (estimated)
- Cost of maintenance (estimated), if applicable
- Diagrams, images, drawings, or simple blueprints of the product/idea are encouraged, but not required

Additionally, you could provide to the IRC: solution requirement documents, solution development plans, industrial design, user interface concepts, user experience description.

During the submission process, you will also have the option to let the IRC know (yes or no) if you have further relevant information, consisting of IP rights that may be of interest to the IRC, that you are only prepared to disclose if the Seeker proposes an acceptable award offer.

Solutions with Technology Readiness Levels (TRLs) 1-9 are invited.



This Prize Challenge has the following features:

1. **By taking part in this Prize Challenge** you are granting the International Rescue Committee (IRC) a right to use (but not own) your submitted information.
2. There will be a guaranteed award of **$15,000 USD**, with at least one award being no smaller than $5,000 and no award being smaller than $2,500.
3. The award distribution will be determined after theoretical evaluation of the proposals by the IRC.
4. Solvers may:
    - Submit ideas of their own
    - Submit third-party information that they have the right to use and further, the authority to convey to the Seeker this right with the right to use and develop derivative works
    - Submit information considered in the public domain without any limitations on use
5. The IRC may also issue "Honorable Mention" recognitions for notable submissions that are not selected for monetary awards.

6. The IRC may wish to partner with the Solver at the conclusion of the Challenge. Please indicate your interest in partnering.

Your Submission

Please login and register your interest to complete the submission form.

The submitted proposals must be written in English and can include:

1. Participation type – you will be asked to inform us how you are participating in this challenge, as a Solver (Individual), Solver (Team), or Solver (Organization).
2. Solution Level - please confirm the Technology Readiness Level (TRL) of your proposal: TRL1-3 ideation, TRL4-6 proof of concept, TRL7-9 production ready.
3. Partnering - there may be an opportunity to partner at the conclusion of this Challenge. Please indicate if partnering is of interest to you.
4. Problem & Opportunity - highlight the innovation in your approach to the Problem, its point of difference, and the specific advantages/benefits this brings (up to 500 words).
5. Solution Overview – Please ensure that you describe the features of your proposal and how they address the SOLUTION REQUIREMENTS (up to 500 words, there is space to add more in the summary field, and attach supporting data, diagrams, etc).
6. Solution Feasibility – Supporting Information and Rationale, such as references and precedents, that will help the IRC evaluate and validate the feasibility of the solution (up to 500 words).
7. Do you have further relevant information you could disclose, consisting of IP rights you would only grant the Seeker subject to an acceptable award offer? If yes, you will be asked to capture the IRC's interest.
8. Experience - Expertise, use cases and skills you or your organization have in relation to your proposed solution. The IRC may wish to partner at the conclusion of the Challenge; please include a statement describing your expertise and indicating your interest in

volunteering towards realizing your prototype solution (up to 500 words).

9. Solution Risks - any risks you see with your solution and how you would plan for this (up to 500 words).
10. Timeline, capability and costs - describe what you think is required to deliver the solution, estimated time and cost. (up to 500 words).
11. Online References - provide links to any publications, articles or press releases of relevance (up to 500 words).
12. How did you find this Challenge? – please indicate what drew you to this Challenge, including any relevant advertising or marketing that you followed to this Challenge.

Wazoku encourages the use by Solvers of AI approaches to help develop their submissions, though any produced solely with generative AI are not of interest.

Find out more about participation in Wazoku Crowd Challenges.

Submissions to this Challenge must be received by 11:59 PM (US Eastern Time) on October 20, 2024.

Late submissions will not be considered.

Your submission will be evaluated by the evaluation team first reviewing the information and content you have submitted at the submission form, with attachments used as additional context to your form submission. Submissions relying solely on attachments will receive less attention from the evaluation team.

After the Challenge submission due date, the IRC will complete the review process and make a decision with regards to the winning solution(s) according to the timeline in the Challenge header. All Solvers who submit a proposal will be notified about the status of their submissions.