REQUEST FOR SUBMISSIONS

RECORDS FOR LIFE:
A Design Contest That Can Save Lives

DEADLINE: October 31st, 2013
RECORDS FOR LIFE: A DESIGN CONTEST THAT CAN SAVE LIVES

OVERVIEW

When immunization information systems function well, health workers and families have the knowledge that they need to ensure that every child is vaccinated. One critical component of current health information systems is the child health record.

Families rely on the child health record to know when their child needs care, and health professionals use the record to ascertain a child’s health history and what the child needs during a given visit. The record is critical to ensure safe and effective vaccination because it identifies children who need to be immunized, have missed immunizations, or are off schedule.

Unfortunately, many families never receive child health records for their children, or they lose the records. Even when families have the records, they are not always accurately filled out because they may be designed in a confusing way.

The Bill & Melinda Gates Foundation is seeking your help to provide ideas for redesigning the child health record, so that accuracy increases, records become easier to interpret and use, and health professionals and families alike value them. To encourage participation and ensure maximum impact, the foundation will recognize the top entries with awards of up to $50,000. Additionally, the foundation may have part or all of the top designs piloted and scaled in as many as 10 countries by 2018.

We are depending on your ideas to improve the child health record, thereby improving information systems and empowering health workers and families to protect children from vaccine-preventable diseases.
PROJECT BACKGROUND

The child health record serves at least five functions in the health system:

1. A unique identifier that is intimately connected to the child
2. A source of critical information for health workers about the child’s health and vaccination status, and what the child needs at each point of contact with the health system
3. A source of critical information for families, such as date of next visit for vaccination
4. A source of critical information for household surveys, which many countries and policymakers rely on to validate the vaccine coverage levels obtained from administrative data systems
5. An educational tool for families to learn more about health interventions

To enable these functions, child health records have to be available, accessible, and utilized by caregivers (e.g. parents), health providers, and surveyors. When a high percentage of the infant population has been issued a record, and families keep the record through the course of vaccination, we say that for that population, record prevalence is high. A high prevalence is fundamental to achieving the five functions of the child health record.

Unfortunately, child health records are frequently unavailable at the time of a household visit or when the child is brought to a health facility. Only 10 percent of countries with data have record prevalence rates higher than 90 percent—the foundation’s estimate of the minimum acceptable prevalence rate to feel confident that the health record is serving all five critical functions. This suggests the need for a strong effort across countries to ensure that the records are available and valued by family members. For more information, see “Prevalence” under Selected Resources, page 9.

In addition to the issue of low prevalence, child health records are not always accurately filled out, or they may fail to provide adequate space to convey additional health information such as vaccinations received in supplementary immunization activities, e.g. vaccination campaigns. Over time, child health records will track more and more data, as countries increase the number of vaccines that they provide for children. As a result, accuracy is likely to decrease over time unless thoughtful design principles are applied to the records. Finally, looking forward, paper records may over time become obsolete due to implementation of a combination of the digitization of health information systems and other possible innovations such as biometric identification systems. At that point, the records will play an important role in the transition of information from a traditional, paper-based information system to a digital one. For more information, see “Accuracy” under Selected Resources, page 9.

The Gates Foundation is partnering with WHO and UNICEF to assess what the global community has collectively learned about effective and ineffective child health records in 2013. We’ll be investigating root causes of records not being distributed, retained, and utilized. In addition, we will look to further understand the results of early studies that have shown programmatic impact due to redesigned records and incentives. For example, Usman et al. (2011) found that 66 percent of children in a Pakistan study received the full course of Diphtheria-tetanus-pertussis vaccine when child health records were redesigned (versus 39 percent in the control group). The redesign in this study had four simple elements: increasing the size of the record, making the record bright yellow, putting it in a plastic cover with a hanging string, and increasing the visual prominence of the “date of next vaccination” data element. We believe that these results could be replicated more broadly and yield an even greater impact by applying a suite of core principles of design to child health records, rather than a subset. For more information, see “Example of how card re-design impacted prevalence and use” under Selected Resources, page 9.

Over the next few years, WHO will convene a group of experts to discuss the findings and start drafting a set of guidelines to help countries determine how to improve record accuracy, prevalence, and use. To inform the guidelines and bring an innovative lens to this problem, in 2013 the foundation is launching an international contest, open to anyone, to redesign current child health records.
FIGURE 1: EXAMPLES OF CURRENT CHILD HEALTH RECORDS

Madagascar

![Madagascar Immunization Card](image)

More available, and at higher-resolution, at the National Immunization Card Repository:
https://sites.google.com/site/immunizationcardrepository

Honduras

![Honduras Immunization Card](image)
Jordan

India — Bihar

More available, and at higher-resolution, at the National Immunization Card Repository: https://sites.google.com/site/immunizationcardrepository
To apply: www.gatesfoundation.org/recordsforlife

FIGURE 2: CHILD HEALTH RECORD LIFE CYCLE AND KEY BREAKDOWNS THAT CAN BE ADDRESSED BY RE-DESIGN

1. The national government prints child health records. The records travel to a health facility via dry-goods supply chain. The records arrive at a facility and are stored indoors on shelves.

2. Health worker grabs a new child health record to fill in recent BCG, HBV and Polio vaccinations of a newborn, uses public health information on the record to illustrate to the mother how to care for her baby during the first 48 hours of life, and confirms with mother the next date of vaccination.

   - The text on the health record is incomprehensible to the illiterate mother; the images depict various activities such as breastfeeding but do not help the mother remember duration, benefits, and other key facts; the mother prefers to rely on her mother-in-law rather than some advice given on a record. As a result the child is started on solid foods too early which has implications for the child’s development.

   - There is no place on the record to indicate date of next vaccination, so health worker may write it in the ‘date of vaccination’ column, so that health workers later on might think the child actually had the vaccine.

3. The caregiver takes the health record and returns home. It is kept in a cupboard or on a shelf.

   - If cooking oil, water, mud or anything else spills on the cardboard record, then it is no longer legible and the information on it is lost.
A household survey is done in the community and the health record is taken out for review by a national surveyor.

The surveyor asks the mother questions and reads the health record to understand the child’s vaccination status.

The record returns to the shelf.

When the child is due for another vaccination, the mother retrieves the card and brings it to the immunization session.

The health worker examines the health record to see what the child needs, and provides the necessary vaccine. The health worker then notes the date of administration and the date that the mother should next visit the facility.

If the due date is written where the ‘date of vaccination’ is supposed to be, the health worker may not give the needed vaccine.

If the vaccine given doesn’t have a place on the health record because it’s a new vaccine, then the health worker might cross out an existing vaccine or write the data down in the margins, which makes the card harder to read and interpret.

The mother returns home and the record returns to the shelf.
The mother retrieves the record and brings it to a special immunization session that falls outside the routine schedule. The child is vaccinated and this is noted on the record.

⚠️ If there is no place to record vaccines that are given during special sessions outside the vaccine schedule, children may be given the same vaccine twice, adding unnecessary costs to the health system.

When the child reaches five years of age, the mother disposes of the record.

⚠️ The mother believes vaccinations are finished and loses the card or disposes of it too early. It’s not available for surveys and it’s not available for giving boosters.

The record returns to the shelf.
Selected resources to learn more about child health records:

- **National Immunization card repository**: [https://sites.google.com/site/immunizationcardrepository](https://sites.google.com/site/immunizationcardrepository)


**EVALUATION CRITERIA AND SPECIAL PRIZES**

The submissions will consist of a prototype child health record and narrative describing how the record’s design facilitates the five functions outlined on page 3.

**Minimum Criteria to be Eligible**

The record must satisfy the following minimum criteria to be considered for the contest:

1. **Record contains key demographic and immunization information**, including the following data elements:
   - A form of unique identification
   - Child’s name
   - Mother’s and father’s name
   - Child’s home address or village at time of birth and space to update this if child moves before vaccinations are completed
   - Child’s date of birth
   - Dates of vaccination for all necessary vaccines and their doses (as outlined in Table 1 and shown in detail here: [http://www.who.int/immunization/policy/Immunization_routine_table2.pdf](http://www.who.int/immunization/policy/Immunization_routine_table2.pdf)), with particular attention to designs that make it easy to record dates accurately, taking into account the co-administration of certain vaccines
   - Place to note when the family should next visit the health center for vaccination (using either a standard calendar or an alternative time-telling method that’s relevant to a specific place or set of places, such as a lunar calendar)
   - Place to record off-schedule vaccinations (such as vaccines given in a campaign to prevent an epidemic disease)
   - Empty space for notes about any extenuating circumstances

   **Note**: The child health record can contain additional information (for example, growth charts); the criteria above represent the minimum requirements.

2. **The record is in English** for the purposes of the contest (but participants can submit in both English and another language)
### TABLE 1: VACCINE SCHEDULE

<table>
<thead>
<tr>
<th>AGE OF CHILD</th>
<th>VACCINES REQUIRED FOR INCLUSION IN THIS CONTEST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birth</strong></td>
<td>• Bacillus Calmette-Guérin (BCG)</td>
</tr>
<tr>
<td></td>
<td>• Hepatitis B Vaccine (HepB)</td>
</tr>
<tr>
<td></td>
<td>• Oral Poliovirus vaccine—1st dose (OPV or OPV1)</td>
</tr>
<tr>
<td><strong>6 weeks</strong></td>
<td>• Pentavalent combination—1st dose (Penta or Penta1)</td>
</tr>
<tr>
<td></td>
<td>• Pneumococcal conjugate vaccine—1st dose (PCV or PCV1)</td>
</tr>
<tr>
<td></td>
<td>• Oral Poliovirus vaccine—2nd dose (OPV or OPV2)</td>
</tr>
<tr>
<td></td>
<td>• Oral Rotavirus vaccine—1st dose (RV or RV1)</td>
</tr>
<tr>
<td><strong>10 weeks</strong></td>
<td>• Pentavalent combination—2nd dose (Penta or Penta2)</td>
</tr>
<tr>
<td></td>
<td>• Pneumococcal conjugate vaccine—2nd dose (PCV or PCV2)</td>
</tr>
<tr>
<td></td>
<td>• Oral Poliovirus vaccine—3rd dose (OPV or OPV3)</td>
</tr>
<tr>
<td></td>
<td>• Oral Rotavirus vaccine—2nd dose (RV or RV2)</td>
</tr>
<tr>
<td><strong>14 weeks</strong></td>
<td>• Pentavalent combination—3rd dose (Penta or Penta3)</td>
</tr>
<tr>
<td></td>
<td>• Pneumococcal conjugate vaccine—3rd dose (PCV or PCV3)</td>
</tr>
<tr>
<td></td>
<td>• Oral Poliovirus vaccine—4th dose (OPV or OPV4)</td>
</tr>
<tr>
<td></td>
<td>• Oral Rotavirus vaccine—3rd dose (RV or RV3)</td>
</tr>
<tr>
<td><strong>9-12 months</strong></td>
<td>• Measles and Rubella vaccine—1st dose (MR or MR1)</td>
</tr>
<tr>
<td><strong>15-18 months</strong></td>
<td>• Measles and Rubella vaccine—2nd dose (MR or MR2)</td>
</tr>
</tbody>
</table>

**Notes:**
- You may include additional vaccines and are encouraged to do so where relevant
- You can use alternate dosing schedules recommended by WHO
- You can exclude the third dose of Rotavirus if you're rather design your prototype for countries using Rotarix (rather than Rotateq)
- You may use DTP, Hib and HBV vaccine schedules in place of the Pentavalent combination vaccine. You may use MCV or MMR in place of MR.
- For PCV, you may follow the schedule of two primary doses plus a booster (2p + 1) if you prefer, taking into account the alternate schedule required.

Evaluation Criteria

Records that meet these minimum conditions will go on to be selected for judging by the panel. Winning records will demonstrate the criteria described in Table 2.

**TABLE 2: CRITERIA FOR SELECTION BY JUDGING PANEL**

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>DESCRIPTION</th>
<th>EXAMPLES OF HOW CRITERION MAY BE EVALUATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity</td>
<td>The record is easy to read, interpret, and use, from the perspective of both the health providers and caregivers</td>
<td>Average time it takes members of a focus group to <strong>correctly</strong> fill out the record for a newborn infant receiving BCG, OPV0, and HBV0&lt;br&gt;Average time it takes members of a focus group to answer five questions <strong>correctly</strong> about the record&lt;br&gt;Adherence to basic design principles around organization of information, as evaluated by judging panel</td>
</tr>
<tr>
<td>Adaptability</td>
<td>The record can track information that may be locally relevant to a district (e.g., blank space to add new information)</td>
<td>Average time it takes members of a focus group to accurately and clearly enter two supplementary pieces of information onto the record&lt;br&gt;Organization of the supplementary information, as evaluated by the judging panel</td>
</tr>
<tr>
<td>Value to caregivers</td>
<td>The record makes caregivers’ lives easier or better</td>
<td>Evidence for how these features generate value for the health worker (as described in narrative and evaluated by judging panel)</td>
</tr>
<tr>
<td>Value to health workers</td>
<td>Record makes health worker lives easier/better</td>
<td>Evidence for how the record’s features generate value for the caregiver (as described in accompanying narrative and evaluated by judging panel)</td>
</tr>
<tr>
<td>Durability</td>
<td>The record material can withstand sand, liquids, and other destructive forces</td>
<td>Readability of record and ability to write on the record after being submerged in a water-sand mix for five seconds and after an oily substance drips onto part of the record</td>
</tr>
</tbody>
</table>

**Additional Special Prizes and Their Criteria**

There are three additional categories that will have their own special prizes in the contest. To be eligible for one or more of these prizes, you must indicate with the submission whether you would like your child health record to be evaluated for them, and which of the three criteria shown in Table 3 you want to be judged on. You must also provide additional narrative information (for more detail, see “Response Instructions” below).

**TABLE 3: CRITERIA FOR ADDITIONAL CONSIDERATION**

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>DESCRIPTION</th>
<th>EXAMPLES OF HOW CRITERION MAY BE EVALUATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of adding new information</td>
<td>New vaccines and dose schedules can be added without disrupting record design</td>
<td>Degree to which data organization could stay the same&lt;br&gt; Degree to which record organization could stay the same&lt;br&gt; Ease of reading and filling out vaccine information with additional data elements, as evaluated by judging panel using modified prototype that adds new vaccine data elements</td>
</tr>
<tr>
<td>Digital transition: visualization of data</td>
<td>The proposed child health record could help prepare users for an eventual transition to digital records</td>
<td>Degree to which record integrates digital visualization concepts&lt;br&gt; Degree to which the information recorded is linked to clear action items</td>
</tr>
<tr>
<td>Digital transition: retroactive data entry</td>
<td>Tools and technologies that enable records to be easily, cheaply, and quickly entered into a digital system retroactively</td>
<td>Speed of translation from paper to digital&lt;br&gt; Probability of bulk-production cost arriving at &lt;$0.50 per record&lt;br&gt; Accuracy rate post-translation, with 10 different kinds of handwriting</td>
</tr>
</tbody>
</table>
RESPONSE REQUIREMENTS

Please adhere to the following instructions and official rules (below) when responding to this request for submissions:

• All contest guidelines must be followed in order for the submission to be considered for the awards.
• All communication relating to this contest should be submitted via email to the foundation at RecordsForLife@gatesfoundation.org. Contestants may not contact anyone else within the foundation regarding this contest during the submission process.
• An application is available here: http://www.gatesfoundation.org/recordsforlife
• Three components must be submitted:

1. Application and Cover Letter—The cover letter should include the following information:
   - Name
   - Title
   - Institution (if applicable)
   - Telephone number
   - Email address
   - Mailing address
   - Whether you want to be considered for any of the three additional categories described in Table 3, in addition to the main category as described in Table 2
   - Anything that is critical for us to know about your submission that is not readily apparent (for example, if you send an electronic copy, but part of your solution is an improved material for the record)

2. Narrative—A 1000-word narrative that answers the following question: In what ways does this improved design increase the record’s capability to serve each of these five functions?
   - A unique identifier that is intimately connected to the child
   - Source of critical information for health workers about the child’s health and vaccination status
   - Source of critical information for families, such as date of next visit for vaccination
   - Source of critical information for surveys, which many countries and policymakers rely on to validate coverage levels obtained from administrative data systems
   - An educational tool for families

3. Prototype—A prototype home-based health record, in English. You may design a record from scratch, modify the record used in your country or modify the record used in another country. The National Immunization Card Repository provides a sampling of child health records from different countries throughout the world.

• If you would like to be considered for any of the three additional prize categories, then include one additional 250-word paragraph per category explaining how your prototype child health record enables us to achieve the goal or goals you have chosen from the supplemental criteria.
RESPONSE DELIVERY INSTRUCTIONS
The application cover letter and narrative (described above) must be submitted electronically at: https://unison.gatesfoundation.org/Applicant/_layouts/Portal/Applicants/ApplicationForm.aspx?RequestId=bb4ab24d-d6bc-e211-bd81-0019b9f31ca1. First time applicants will be prompted to create an account before viewing contest documents.

• Please send questions regarding the application process to RecordsForLife@gatesfoundation.org.

• All contest entries must be submitted by 10am PT on Thursday, October 31, 2013. Late submissions may not be considered. If you anticipate difficulty meeting this deadline, please email RecordsForLife@gatesfoundation.org.

Important: By submitting anything to the foundation through this contest, you are confirming that it is your original work and that no one else has rights that would limit how your submission may be used (that is, that there are no copyright or ownership restrictions). You give the foundation permission to use your submission (in whole or in part) to further the objective of this project and other projects, including widespread reproduction and use by the greater vaccine community. Also, even if your submission is not selected as a contest winner, you agree to permit the foundation to make it widely available to others without restriction, including to third parties that may use it to develop other products.

FAQ
Who can participate? This is an open contest—we welcome submissions from individuals in all sectors (private, NGO, government, academic) and at all levels of expertise (students, professors, frontline workers). Submissions can come from individuals and teams of individuals (participants must be eighteen or over). Employees of the foundation and their respective immediate families cannot participate.

When is the final product due? The final product will be due on October 31, 2013.

When will the top entries be selected? The winning entries will be announced in early 2014.

What are the cash awards available for top entries? To encourage innovative work and to increase attention to this critical project, the foundation will honor the top entry with a cash award of $50,000 and will provide additional cash awards of $20,000 to the top entries for the three additional categories. In addition, the foundation may recognize up to five additional entries with “honorable mention” payments of $10,000. All amounts are in U.S. currency.

Top entries will be selected by the project judges, based on their experience and expertise as well as the feedback from focus panels and other reviews against the criteria described above. Final decisions will be subject to the foundation’s approval, and award payments will be contingent on confirmation of compliance with these official rules and other terms and conditions.

Why is this structured as a contest? We believe that a contest may encourage individuals to participate. We want to help generate lots of new ideas to help further the twin goals of reducing vaccine-preventable diseases and ensuring that all children have a chance to live a healthy and productive life.

Will I receive any compensation for submitting? You will not receive any compensation for your submission, even if it is used by the foundation or third parties in any way. Some submissions may qualify and be selected for cash payments, as described above.

What will the foundation do with my submission? The foundation will review all submissions. We may also share your submission, or ideas contained within it, with the public or global health partners to ensure that good ideas and new innovations are broadly disseminated and available for use in developing countries. With this in mind, please ensure that any materials you provide under this contest are your own, and understand that the foundation and others will have a right to use your submission freely, upon delivery, for noncommercial purposes.
**KEY CONTEST RULES**

No membership, purchase, or payment of any kind is necessary to enter this contest.

By participating in this contest, you understand and agree that if you share or disclose an idea or proposal, you waive all rights, claims, or lawsuits you may have against anyone who incorporates the idea or proposal into any future works. You also represent that you have sufficient right to share and disclose such ideas or proposals.

You agree that your submission(s) will be made available under the Creative Commons CC-BY-NC license (located at [http://creativecommons.org/licenses/by-nc/3.0](http://creativecommons.org/licenses/by-nc/3.0)), which allows the submission to be copied, modified, and redistributed under a similar license, with proper attribution and only for noncommercial purposes. This contest is subject to the official rules described in this announcement and all applicable laws. By entering this competition, each participant agrees to be bound by these official rules and the decisions of the foundation, which are final and binding in all respects.

Any changes to these rules or this document will be posted on the foundation website: [http://www.gatesfoundation.org/recordsforlife](http://www.gatesfoundation.org/recordsforlife). The foundation reserves the right to remove and disqualify any submissions without notice in its sole discretion. The foundation is not responsible for lost, stolen, late, damaged, incomplete, or misdirected submissions, or for any problems or technical malfunctions related to the submission process. If for any reason this contest is not capable of running as planned, the foundation reserves the right in its sole discretion to cancel, terminate, modify, or suspect it at any time.

**Waivers and Permissions**

By participating, you agree that any information provided may be used according to the terms and conditions of the foundation’s Terms of Use and Private Policy as amended from time to time. See [www.gatesfoundation.org/about/Pages/terms-of-use.aspx](http://www.gatesfoundation.org/about/Pages/terms-of-use.aspx) and [www.gatesfoundation.org/about/Pages/privacy-policy.aspx](http://www.gatesfoundation.org/about/Pages/privacy-policy.aspx) for further information.

**ABOUT THE BILL & MELINDA GATES FOUNDATION**

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people’s health and giving them the chance to lift themselves out of hunger and extreme poverty.

One of the top priorities for the foundation is the successful discovery, development, and delivery of lifesaving vaccines to children around the world. Vaccines are among the most cost-effective investments in global health, saving about 2.5 million lives each year. But every 20 seconds, a child dies from a vaccine-preventable condition such as diarrhea or pneumonia. All of our investments in vaccines and immunization contribute to the goals of the [Decade of Vaccines](http://www.gatesfoundation.org/recordsforlife), which have been endorsed by 200 countries. As one entity within the greater vaccine community—which includes national governments, other donors, international organizations, the private sector, academia, civil society organizations, faith-based organizations, and local communities—we are working to ensure that existing lifesaving vaccines are introduced into countries where people need them most, and we support the innovation needed to develop new vaccines and delivery technologies and approaches.

Ultimately, all of our vaccine-related work depends on strong systems within countries. We therefore invest in programs that strengthen and provide support for routine immunization systems. One of the core components of an immunization system is the health information system. In seeking to improve the quality, availability, and use of health information, we invest in initiatives to improve the collection and analysis of vaccine-related data (include child health records), measure the progress of vaccination efforts, and develop new diagnostic tools to help health workers assess immunity to disease.

*To learn more about the foundation’s work, visit [www.GatesFoundation.org](http://www.GatesFoundation.org).*