BEFORE AND AFTER:
HOW AN ONLINE IMMUNIZATION REGISTRY HAS BENEFITED HEALTH WORKERS IN ALBANIA
Starting in 2009, the Albanian Institute of Public Health collaborated with project Optimize to implement an online immunization information system (IIS) that can schedule and record all child immunizations in the country, as well as manage vaccine stock and storage. It was first implemented in one district in 2011, and will be gradually deployed to all other districts over the next three to five years.

This photo set illustrates how the new system has benefitted health workers in Albania. The “Before” pictures describe how health workers used the previous paper-based registry, while the “After” pictures describe how they are now using IIS.


For more information on project Optimize: www.path.org/projects/project-optimize
www.who.int/immunization_delivery/optimize
A nurse examines her immunization registers to find children due for vaccination. Before the new immunization registry was implemented, nurses and the district head of vaccinators in Shkoder district worked together using a paper-based system to make sure that all children received the vaccinations they required. Each month, the nurse made a list of all the children due to be vaccinated that month in her health center by carefully going through the health center’s paper-based immunization and cohort registries. She used this list to schedule each vaccination, notify parents, and make a list of how much vaccine to order.
2. **BEFORE: Requesting the required vaccines**

The nurse brings the list of required vaccines to the district head of vaccinators, who then reviews the request to make sure it is appropriate.
A child is given a quick check-up before being given a scheduled vaccination. For each vaccination she administers, the nurse will have to fill out six different paper-based forms and registers.
4. BEFORE: Counting the number of vaccines administered

Using her handwritten immunization register, a nurse counts the vaccinations administered during the quarter. At the end of each quarter, the nurse must review the registers to produce a vaccination coverage report. This report is compiled by hand and compares the number of children scheduled for vaccination with the number of children vaccinated.
5. **BEFORE: Compiling a coverage report**

Once the nurse has completed her coverage report, she sends it to the district head of vaccinators, who reviews the figures and aggregates them to produce a district coverage report.
The Albanian ministry of health developed a computerized immunization registry to replace the existing paper-based registry. In May 2011, the new system—IIS—was piloted in Shkoder district.
7. **AFTER: Creating an immunization schedule**

As soon as a child is born, the maternity nurse enters the child’s data into a central database. A schedule of the child’s future immunization appointments is then automatically generated. Note: Some personal data has been blurred in this picture.
A nurse signs in to IIS through a web browser to view her monthly plan. This monthly plan groups all appointments for the nurse that month.
When a child’s immunization appointment is due, the child is automatically included in the monthly plan of the health center responsible for the child. These monthly plans mean that nurses no longer need to go through the immunization registries to find the children who need to be vaccinated. Instead, they use the monthly plan to organize their vaccination schedules. Another useful feature of IIS is the ability to send SMS text messages to parents to remind them of forthcoming appointments.

### Monthly Plan - IIS

<table>
<thead>
<tr>
<th>Child</th>
<th>Caretaker</th>
<th>Vaccine</th>
<th>Vaccine Schedule</th>
<th>Vaccine Date</th>
<th>SMS</th>
<th>Vaccine Date</th>
<th>Vaccine Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DTP - R1</td>
<td>2 Vjec</td>
<td>26/06/2012</td>
<td></td>
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</tr>
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<td></td>
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<td>OPV - R1</td>
<td>2 Vjec</td>
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<tr>
<td></td>
<td></td>
<td>OPV - R2</td>
<td>2 Vjec</td>
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<tr>
<td></td>
<td></td>
<td>DTP - R2</td>
<td>0 Vjec</td>
<td>28/06/2012</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Some personal data has been blurred in this picture.
The monthly plan also calculates the total number of vaccine doses required. This information helps nurses to determine the exact vaccine quantities to order. Note: Some personal data has been blurred in this picture.
AFTER: Requesting the required vaccines

A commune health center nurse receives his vaccines for the month from the district supervisor, together with a printout of the monthly plans for all the villages in his area.
AFTER: Distributing vaccines to health post nurses

Together with the required vaccines, the health center nurse passes on a printout of the monthly plan to a village health post nurse.
13. **AFTER: Recording an immunization**

Nurses can record the child’s immunization directly into the system. Alternatively, if there is no Internet connection available, they can print out the monthly plan and mark in separate columns the date and vaccine lot used for each vaccination. This information can then be recorded in IIS at a later date.
14. **AFTER: Creating a coverage report**

Reports on vaccine coverage can be automatically calculated by the system, based on the cohort of children that were registered.
15. **AFTER: Identifying children who have not been immunized**

IIS can identify any children who have not been vaccinated—those who have been registered but have not yet received all their doses. This enables nurses to quickly identify any defaulters and to check that access to vaccination is equitable across communities. 

Note: Some personal data has been blurred in this picture.
AFTER: Ensuring children are vaccinated

A “patronage nurse” visits the home of a child who has missed a vaccination appointment.
AFTER: Keeping track of stock

IIS manages the stock of vaccines and consumables, which allows the Institute for Public Health to monitor the expiry date, distribution, and usage of ever more expensive vaccines. Also, by linking the vaccine lots to the individual child records, lots can be traced through the stores and eventually to any children who have received a dose from a particular lot. This is essential for issues of vaccine safety.
AFTER: Benefits to parents

Parents who provide their national identification number can access the system themselves to download a vaccination certificate for their child, required for school enrollment.
AFTER: Vaccination card

This card shows the lots that were used for every vaccination as well as the cost of each dose (covered by the ministry of health), which may sensitize the community that vaccination may be free, but it still has a cost and a value.
A mobile phone application was developed for nurses in remote areas. Having the possibility to access IIS by phone rather than by desktop computer will facilitate the scale-up plan.