

Appendix S1: Example of internal learning within a facility

A facility wanted to improve early initiation of breastfeeding. Here is what staff at the facility learned about the problem and how to implement the improvement.

A. What did you learn about the specific problem your facility was trying to fix?

What were the causes of the problem?

Mothers were discharged to the ward before breastfeeding, and families often took the babies and did not return them to the mother for some time.

What solutions did you use to try to fix the problem?

Solutions that worked:

1. Setting up extra bed space in the labour room to keep mothers for longer
2. Involving families in starting breastfeeding

Solutions that failed:

1. Training staff on breastfeeding

What adaptations did you make?

2. Initially, nurses counselled families about breastfeeding. We learned that it made more sense for nutrition counsellors to do this.

What was the overall effect on patient care?

Early initiation of breastfeeding improved.

What data did you use to measure the effect?

3. We collected weekly data on the percentage of babies initiating breastfeeding within one hour.

How did this data change over time?

4. The percentage of babies initiating breastfeeding within one hour increased from 42% to over 85% within 11 weeks of starting the project, and it has been maintained for 7 more weeks.

B. How did you implement the improvement method?

What internal problem-solving approach did we use?

We used:

1. Team-based improvement approaches to analyse the problem, test changes and use data for improvement;
2. Clinical training for staff to highlight the importance of breastfeeding; and

3. Clinical training for family members about the importance of breastfeeding and practical approaches to support mothers to breastfeed.

What approaches worked well?

- Using team-based improvement methods
- Training family members

What approaches did not work well?

- Training staff on the importance of breastfeeding

What adaptations did we make?

- Initially, it was hard to organize quality improvement team meetings. We moved them to between shift changes to make it easier for people to attend, and this change worked well.
- Initially, we were only collecting and reviewing our data monthly. This schedule was too slow, and we were unable to learn if what we were doing was helping. The coach helped us come up with a way to look at the data weekly.

What problems did we need external help to solve?

What external support helped?

- Coaching support was useful in helping us adapt our data system.

Appendix S2: Example of internal learning within a district

A district wanted to improve early initiation of breastfeeding in six facilities. Here is what staff at the district level learned about how to implement the improvement.

A. What interventions did we plan to support facilities?

Interventions	What activities did we plan to implement our approaches?	What activities did we carry out?	Which activities were easy to carry out, which were hard, which were impossible? What adaptations did we make?
Leadership and management	Set up quality of care (QoC) committee or working group	Monthly meeting	Hard, adapted by combining with monthly district health team meeting
Training on team-based improvement	a. Provided quality improvement (QI) training b. Set up QI coaching system	a. Two-day workshop using QI training (provided by the district or a partner) b. Quality focal person provided monthly coaching visits	a. Sections x and y of the training were irrelevant for our district b. The coaching was feasible but is not scalable if more sites are involved
Clinical training	Provided training on infant and young child feeding	Integrated with QI training	Easy
Peer-to-peer support	Organize bi-monthly 'learning sessions' between the six facilities	No funding available	Need some way of funding these meetings

B. How did these activities affect health worker behaviours?

- Two of the facilities formed QI teams after the initial training. The facilities started analysing why early initiation of breastfeeding was not happening and testing changes.
- One facility formed a QI team after two coaching visits.
- The other three facilities have not started any QI work, as they don't think it will work in their setting.

C. How did the new health worker activities affect patient care?

- The three facilities that started QI interventions showed big improvements. The other facilities have no data.

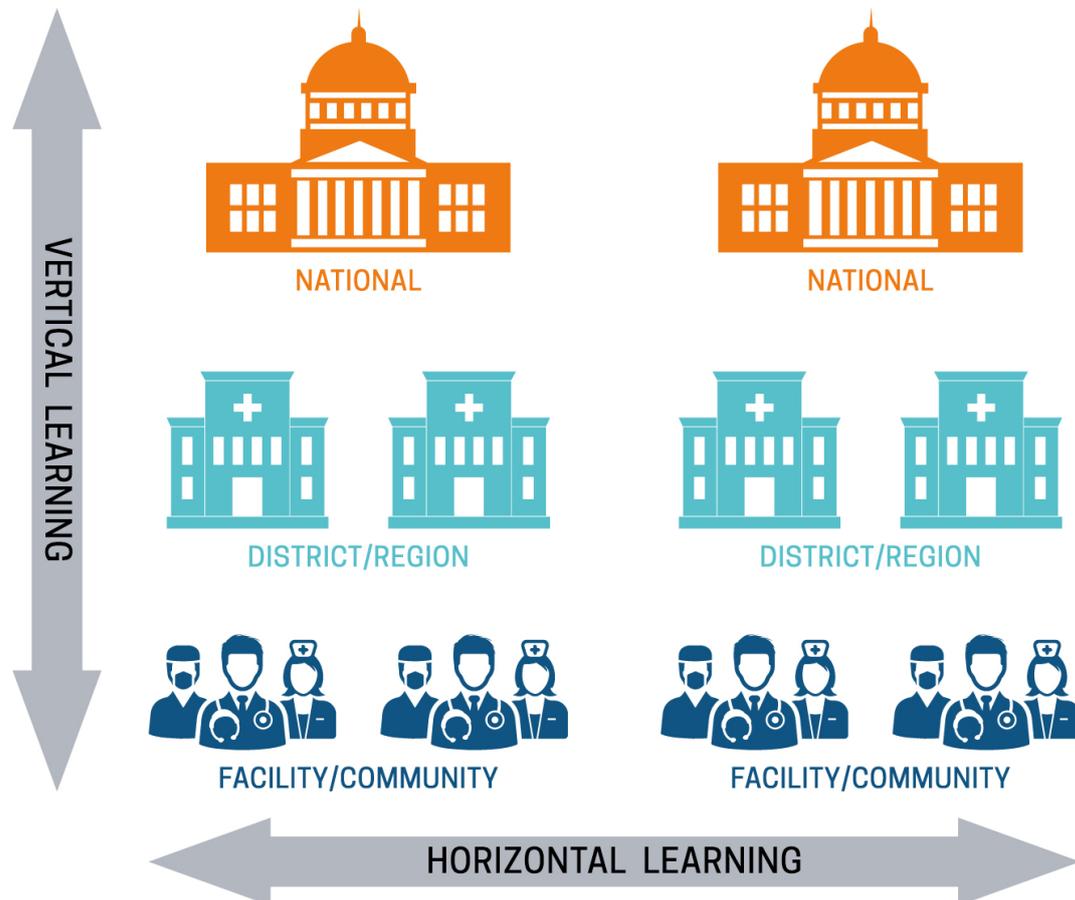
D. How did we adapt our interventions based on what we learned about how the support we provided affected health worker behaviour and patient care?

We identified a number of issues that we need to address by adapting our interventions:

Issue identified	Adaptation
Many health workers were put off by the team-based improvement training because it focused too much on data and was not always relevant to the context in our district	<ul style="list-style-type: none"> • Use examples from the successful improvement projects to make the training more relevant • Simplify the initial training on data and build more training on data into coaching visits after the team has started their first improvement project
Using the quality focal person as a coach was feasible for six facilities but she would not be able to coach more than 10 facilities in a month due to her other duties	<ul style="list-style-type: none"> • Need to build a cadre of coaches to support team-based improvement that is scalable. Try to train nurse supervisors as improvement coaches and have them take up coaching in two facilities each to see if this system can work.
Facilities are not learning from each other about their efforts to improve care	<ul style="list-style-type: none"> • Include a line item for 'learning sessions' in next year's budget

Appendix S3

Figure A: A national learning system with horizontal and vertical learning between levels



Sourced from:

World Health Organization. 2022. "Guidance on Developing National Learning Health-Care Systems to Sustain and Scale up Delivery of Quality Maternal, Newborn and Child Health Care." WHO. <https://apps.who.int/iris/handle/10665/353739>.

Appendix S4: Examples of learning that could be shared

horizontally

Within the health system, learning on QoC may be shared horizontally (e.g., facility to facility, district to district). Using the example of efforts to improve initiation of early breastfeeding, the table below provides examples of learning that could be shared horizontally at different levels of the health system.

Health system level	Patient-level results	Methods to improve	Solutions
Facility level	<i>Process or outcome data</i>	<i>What methods were used to improve care?</i>	<i>What were the specific changes that led to the results?</i>
	Percentage of babies initiating breastfeeding in the first hour after delivery increased from 53% to 95% over 11 weeks	1. Clinical training on breastfeeding standards 2. Quality improvement approaches to identify and remove barriers to breastfeeding	1. Nurses counsel women on breastfeeding (did not work due to work load issues) 2. Nutrition counsellors counsel women on breastfeeding (worked) 3. Change policy to keep women in labour room for one hour to prevent separation during transport to ward (worked) 4. All birth companions in labour room and counsellors counselled the companions (worked)
District level	<i>Aggregated process or outcome data</i>	<i>What methods were used to improve care?</i>	<i>What support did the districts provide to help facilities improve care?</i>
	Percentage of babies initiating breastfeeding in the first hour after delivery increased from 42% to 84% over 15 weeks in 10 facilities with around 400 deliveries per month	1. Clinical training on standards breastfeeding 2. Quality improvement approaches to identify and remove barriers to breast feeding	Clinical training <ul style="list-style-type: none"> • Provided standards and protocols • 1 day training for 2 nurses from each facility using xx method QI approaches <ul style="list-style-type: none"> • 1 day training on QI for 2 nurses and 1 doctor from each facility using xx method • Monthly onsite QI coaching visit from quality focal person Data systems <ul style="list-style-type: none"> • Changed registers to make it easier to collect and report data Management systems

			<ul style="list-style-type: none"> Data and reports from facilities about what extra support they needed were reviewed and acted on monthly by QoC committee
National level	Aggregated process or outcome data	<i>What methods were used to improve care?</i>	<i>What support did the national level provide districts and facilities to help improve care?</i>
	Percentage of babies initiating breastfeeding in the first hour after delivery increased from 33% to 75% over 20 weeks in 26 facilities (3 districts) with around 1000 deliveries per month	<ol style="list-style-type: none"> Clinical training on standards breastfeeding Quality improvement approaches to identify and remove barriers to breast feeding 	<p>Clinical training</p> <ul style="list-style-type: none"> Adapted standards Developed training program xx Appointed trainers from nursing schools <p>QI approaches</p> <ul style="list-style-type: none"> Developed training program xx Appointed QoC focal people at each district. Provided five-day training. <p>Management systems</p> <ul style="list-style-type: none"> Data and reports from districts about what extra support they needed were reviewed and acted on monthly by QoC committee <p>Human resource approach</p> <ul style="list-style-type: none"> Approval letter instructing District Health Officer to allow QoC focal person to travel for 10 days a month to coach facilities