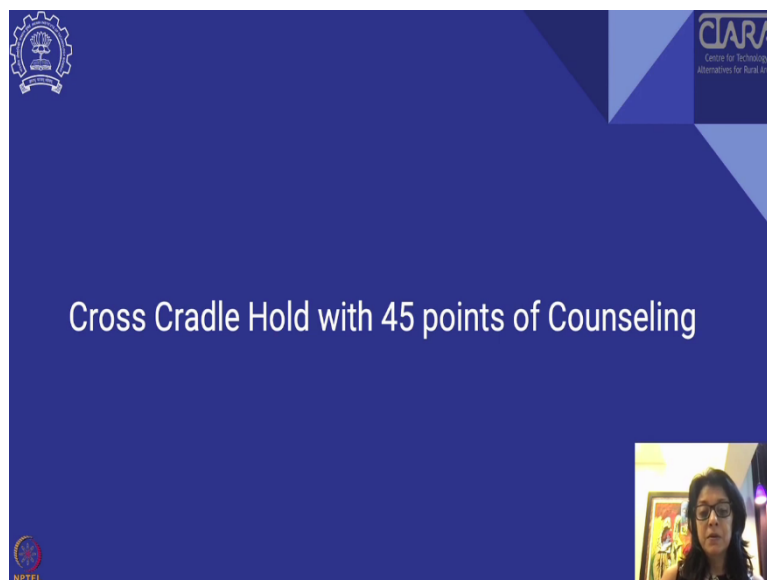
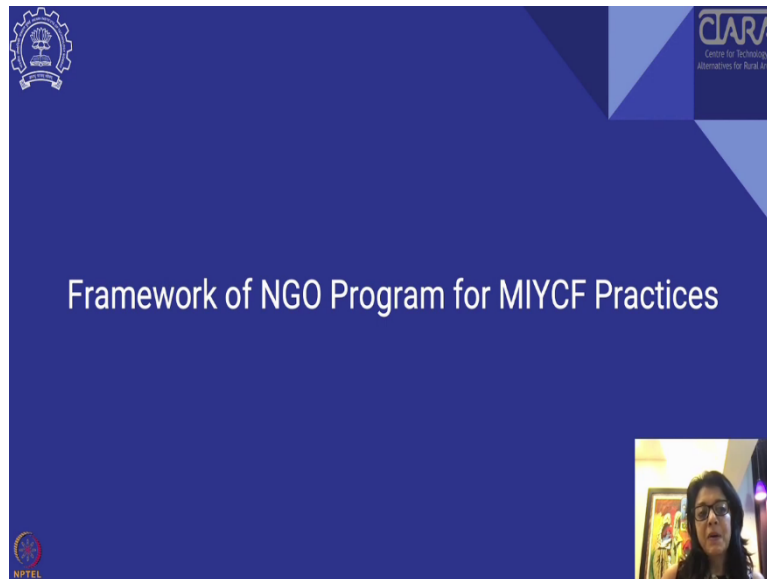


**Introduction to Maternal Infant Young Children Nutrition**  
**Prof. Rupal Dalal**  
**Department of Biological Science**  
**Health and Nutrition**  
**Indian Institute of Technology, Bombay**

**Lecture - 3**  
**Session - 1**  
**MIYCF Framework**

(Refer Slide Time: 00:16)



Hello, everyone, today is third part of first session, and we already discussed about, NFHS 4 an NFHS 5 data on exclusive breastfeeding, and also on complementary feeding. And we also discussed about growth charts. So today, I am going to talk about a framework that we had

created at one of the NGO that, I was working at. And this was the framework for maternal infant, young child feeding practices.

We had to actually created a protocol, and it took us almost, I would say, 6 to 7 years to come up with this protocol from our learning in the field. So, this is what I am going to discuss today to understand, like what we did and what helped, actually. And this is the same NGO, which showed a good amount of reduction of not only wasting and underweight but also stunting. So, before we again, go deep into each factor, just wanted to give you a broad guideline that what we did.

So, first thing was basically, we focused a lot on breastfeeding. It took us almost, I would say, long, 6, 7 years to understand what was missing in the breastfeeding aspect. Because initially, in first 4, 5 years, I was not getting results, and our children were not gaining as good a weight, as they were expected to. And again, experience from the U.S., as we were very strict on growth monitoring.

So, if children did not grow, we had to immediately take an action. And here I was. I was trying to teach them breastfeeding holds, and all, which I had learned by reading again not, this training was not done in our medical curriculum, not even an attendee level in the U.S. in pediatrics. So, obviously, looking at all these guidelines I was teaching them traditional holds. Cradle hold, and I would say, not focusing so much on intricacies of technicalities.

And when children were not gaining weight, I was like, thinking what to do. I mean, in the U.S. immediately mothers start formulas, but here I was working in slums, so I didn't want to think of even starting anything, because that was out of question. And for me, giving exclusive breastfeeding was very, very important.

And, somehow, we have kind of figured out when we continue seeing such cases most of the cases were not gaining weight, actually. And then one of the baby, in fact, kind of, I would say taught us. And, we came up with this 45 counseling points because of strict monitoring of our data, and cross cradle actually worked really well. So, what we did is, basically, we taught mothers, this cross cradle hold.

Starting from, I would say, 2013 or so we started doing cross cradle hold. And our goal was just to train these pregnant mothers who came in. Because when these mothers actually were not trained on proper breastfeeding technique, when they would go for deliveries, any

outside, lot of those doctors would start formulas, or they would say “breastmilk is not being produced” and they would start all this cow milk formulas, so we wanted to kind of empower our pregnant mothers. And that is when we actually saw great results.

Even when they are delivered. Even if they were told not to give breast milk because babies were either born by cesarian or some of the other issue they did not listen to doctors, they give it. So, I think this is a very important point that I would like to discuss is to teach your pregnant mothers these 45 points of counseling with cross cradle hold, and you will definitely see timely early initiation of breastfeeding, you will see amazing weight gain. They do not lose so much weight.

The saddest what I saw that, even in U.S. when I was using this hold every time I went in urgent care, when mothers came, we would teach them cross cradle hold at day 2 or day 3 post delivery, and now we are seeing just amazing results of like 50, 60 grams a day. And no wonder, WHO table shows 200 gram weight gain in first week, and that is what I saw, actually.

Which surely, we do not see it in India, unfortunately, maybe because of the mothers are not guided, or probably I have, I do not want to blame too many things, but, I saw similar results in India in our program, when we started teaching cross cradle hold, so that is why I was insisting on this kind of 45 points of counseling.

(Refer Slide Time: 05:34)



And what we did is, basically here this is one of the projects in Banaskantha where all these pregnant mothers were brought in PHCs and they were taught, using our health Spoken tutorial, which I will speak in the next session. And, you know, they were taught to this hold when they were pregnant. Not only when they were pregnant, they were asked to demonstrate with breast model and the doll. And then immediately, as soon as they delivered, PHC medical officers, and ANM and Asha would train them on cross cradle hold and basically empower her.

So, that is what the important aspect, and that is what we did in our program also. We brought all these pregnant mothers in. We not only, of course, talk about breastfeeding techniques, but we also spoke about her nutrition. Because her nutrition was very important, and we tried to kind of get all the mothers from first trimester onward. Because, obviously, what I noticed that there was a huge number of low birth weight babies being born in urban slums.

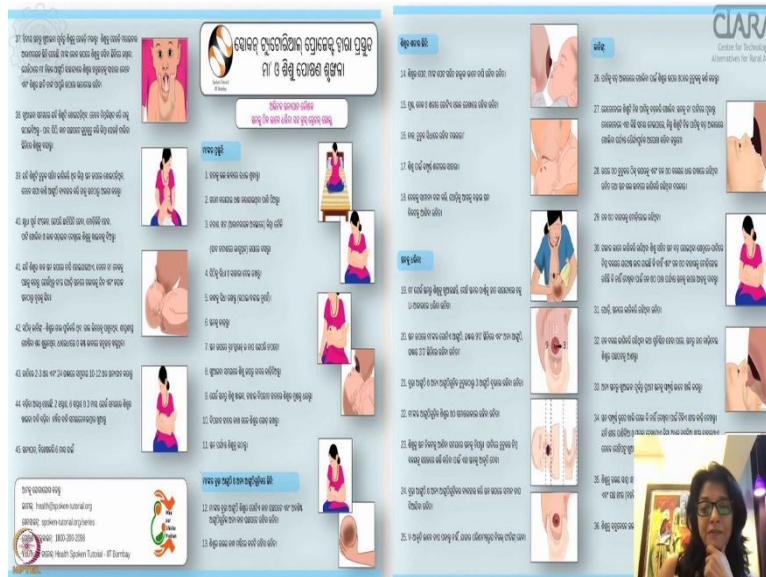
So, I wanted to improve their birth weight, so we kind of we brought them in early. We would have, one session per month or so even sometimes, once every two weeks, depending upon which trimester they were in, and focused a lot on nutrition. Focused on red flags, focused on understanding of minor aches and pains in pregnancy. We did not do a lot of this obstetrician kind of care, because we did not have a gynecologist in our program.

So, it was more of a kind of other things which were not done in the hospital that we kind of took care of. So more of like a nutrition counseling, breastfeeding counseling, talking about issues, just general issues, teaching them some exercises and like paramedical stuff. So that was important part of a program.

(Refer Slide Time: 07:35)







Second part was basically teaching mothers giving them support on cross cradle hold. So again, you can see this cross cradle hold is completely opposite of what traditional hold is. Here baby is been held by opposite hand again, I will discuss more in detail later. And here, medical officer in Banaskantha district, she is doing a home visit, and she is teaching mother actually how to hold, looking at the latch, all those important points, which she was taught in one of the training.

Here, this is another photograph of breastfeeding, latching. Again, what, we noticed that in his hold baby could really open a big mouth had a very good extension of neck, that extension of neck is relatively important, looking up a little bit like that. It was difficult to get that in a traditional hole.

And, the way mother was holding the breast was completely different, it was U-shaped, rather than a C-shape, which we already, which we always see in the in the program. And then after, kind of trying this hold on, I would say, hundreds of babies, we again, and looking at the data that what helped what did not help our advice I am talking about, we eventually came up with 45 points.

Now, these 45 points included everything starting from mother's preparation, then the way she sits, the way she holds the baby, the way she brings a baby to the breast, baby's position, baby's latch, mouth latch and other counseling points. So, it kind of encompasses the whole technicality of breastfeeding.

We've always told that breastfeeding is important, breastfeeding is important, but exactly what to do. Now if suppose, for example, if I have nobody to help me, nobody to teach me then how, as a mother I would learn this skill on my own, I would call it do it yourself, and then basically practice the breastfeeding on your baby.

So, that is what that was a reason to come up with this kind of concise document. Of course, this is really important for healthcare workers, doctors and medical staff and nurses to learn this. But in case if mothers do not have any support physical support just by looking at it and understanding, she can definitely try it. And I have a lot of mothers who call us on Poshan helpline and we just pass them this tutorial which we have created on 45 points and they do wonderful, they do wonderful.

We have so many mothers telling us that oh, just by looking at the skill videos I was, I understood the problem and their problem is fixed to within 24 to 48 hours. So, this is to just kind of standardize the process, so that, it becomes easy for capacity building. So, here we created this kind of brochures and a wall hangings in different languages, basically, all different languages.

So, if any, you know, NGOs working in different areas of India, if they want, if they would want to take it up, we have it in all the different languages. This is created by CTARA and Spoken Tutorial basically.

(Refer Slide Time: 11:08)






# Modified WHO Breast Feeding Assessment Form



Mother's name \_\_\_\_\_ Child's name \_\_\_\_\_  
 Date of assessment \_\_\_\_\_ Child's DOB \_\_\_\_\_

Tick the observed favorable behaviour	Tick the observed unfavorable behaviour
<b>Mother</b>	<b>Mother</b>
Mother looks healthy and comfortable	Mother looks unhealthy and/or sick
Mother is relaxed and sitting straight with the back support	mother with tensed shoulder and is leaning over the baby and no back support
Mother holds the baby securely and close to her	Mother holds her baby nervously and far from her
<b>Baby</b>	<b>Baby</b>
Baby looks healthy	Baby looks sick and tired looking
Baby looks at mother's breast hungrily	No responses to breasts
Baby latches and searches for his breasts	No search responses
<b>Breast</b>	<b>Breast</b>
Breasts are soft and filled before breastfeeding	Breasts are engorged and hard
Breast tissue is healthy and rounded appearance	Breasts are stretched/ drooped or bruised, cracks and redness
Signs of milk ejection	No signs of milk ejection
<b>Position</b>	<b>Position</b>
Mother's stomach and baby's stomach are touching each other	Baby is held far away
Baby's head, back, hips and leg is supported and in straight line	only shoulders/neck are supported and baby's body is twisted
Nose is in line with the breast's nipple	Nose is not in line with the breast's nipple
Mother brings baby to the breast with chin forward	Mother does not bring baby to the breast with chin forward. Baby's mouth is coming straight to the nipple.
Latching and suction	Latching and suction
Mother's milk ejection	Mother's milk ejection
Lower lip protrudes out	Lower lip tunnel in
Baby's chin is embedded in the breast	Chin is not embedded in the breast
Baby grasps a lower part of areola in the mouth	Baby grasps only a nipple or upper part of areola

and upper areola is seen with lower lip at the border of areola and breast or beyond if areola is small	lip areola in the mouth and both upper and lower part of areola seen equally outside the mouth. Lower lip is just near the nipple
Checks with rounded appearance	Checks are tense or floppy
Baby explores the breasts with tongue	Baby is not interested in the breast
Baby is calm and alert at the breast	Baby is restless or crying
<b>Important points counseling Breast Feeding</b>	<b>Important counseling points of Breast Feeding</b>
Mother knows how to check the latch of the baby by pressing the breast near lower lip	Mother doesn't know how to check for the latch of the baby
Mother fingers are placed parallel to baby's lips on the breast 3 fingers away from the nipple	Mother fingers are not parallel to baby's lips on the breast too close to nipple or too far from areola
Mother knows early hunger cues like squirming, opening of the mouth, putting finger in the mouth	Mother feeds the baby when baby cries
Mother waits for the baby to open the mouth wide by stimulating baby's upper lip with her nipple	Mother does not wait for the baby to open the mouth wide by stimulating baby's upper lip with her nipple
Mother feeds the baby 10-12 times in 24 hours	Frequency of breastfeeding is less than 10 times in 24 hours
Mother feeds the baby completely from one breast before switching to the other breast	Mother offers both breasts for less than 5 minutes, without emptying breasts.
Mother expresses milk from the 1 <sup>st</sup> breast to check if she has thin milk or thick milk coming out	Mother offers other breast without checking if she still has thick milk remaining in that breast
Mother breastfeeds the baby 2-3 times at night	Night bre
Mother knows the technique of burping the child	Mother's burping t
Mother knows the technique of waking up the baby	Mother's waking u
Mother drinks one glass of water before breastfeeding	Mother's breastfee
Mother is wearing loose clothes while breastfeeding	Mother's breastfee
Mothers know techniques of manual expression	Mother's manual e



Then what we did, when mothers came to our program, it was very important for healthcare worker to assess breastfeeding. Now, this is breastfeeding assessment tool that, of course, it was created by WHO, but we kind of modified it. Because our techniques were different, we were promoting cross cradle hold, so I wanted to add a lot of those points, and also wanted to kind of add some of this counseling points, which were not given in WHO assessment tool, so we kind of modified that assessment tool, and this is what basically we came up with.

Just important points, not too much, which was not helping mothers to breastfeed or not helping babies to gain weight so we removed some of those points, but putting kind of more about points which are very, very relevant. Points which were relevant, for example, more on latching, more on understanding. If mother understood whether she knew early hunger cues, she knew that we need to be fed few times at night, all those points that we put it in there.

And what healthcare workers were supposed to do in my program, is every time baby came with a mother, I am talking about first 2 to 3 weeks when mother is still learning breastfeeding, they had to basically check. So, on left side, you have all the favorable behaviors, and on right side, you have unfavorable behaviors or unfavorable signs, symptoms, or whatever you can say.

So, if suppose, baby came with the mother, we would first weigh the baby, I mean, that was very important. But then we would tell mother, you breastfeed and I am going to examine, So healthcare workers would examine the mother and the baby, and the way they breastfed. By looking at it and by filling out these forms we could actually figure out the problem where the

problem lay, because then we immediately knew that, okay, this is a problem that mother do not know, hunger cues, then we will discuss more about that hunger cue or a mother did not know how to bring the baby to the breast.

So, we discussed that point, but this assessment was very important when they came to our program. So, I definitely recommend to all the, all my friends over here to kind of I will put a PDF for this form. We have, again, you know, recreated added few more points from learning in past couple of years. And then just kind of even if you if you are a mother, and if you want to just assess your breastfeeding, just fill this form at home, and then figure out where the issue is. It is all basically like a problem-oriented solutions so that you need to know this. Then the breastfeeding will be very successful.

(Refer Slide Time: 14:03)



CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Effective Breastfeeding Technique



NPTEL



CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Why Every Mother Needs Help

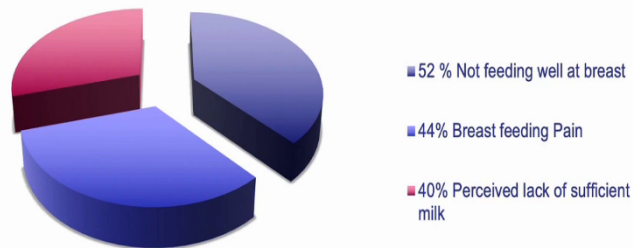
Whether Mother is in Western World or in Tribal or Slum Area....



NPTEL

Sample of 532 First Time Mothers at UC Davis Hospitals, CA   
 92% of the new moms reported at least one breastfeeding concern

Mothers' complaints on day 3



Concerns at any postpartum interview were significantly associated with increased risk of stopping breastfeeding an peak ARR at day 3 (eg, stopping breastfeeding ARR [95% confidence interval] = 9.2 [3.0–infinity]). The concerns yie adjusted PAR for stopping breastfeeding were day 7 "infant feeding difficulty" (adjusted PAR = 32%) and day 14 "milk NPT PAR = 23%)



As I of course, said, why this effective breastfeeding. Again, I keep talking about not just timely early initiation or exclusive breastfeeding, I keep talking about effective breastfeeding. Because I wanted to see that if you, if mother knew breastfeeding, then why would she start top feed? Or if mother knew proper breastfeeding, then why would we see so much of SAM so much of stunting underweight under 6 months of age because babies are only getting mother's milk.

So, like, obviously, you know, once we started learning these new techniques so all these questions came to our mind, and I think why every mother needs to help. Every mother needs help. Whether it is a mother in a tribal area, slum area, western world. In fact, western world mothers need much more help.

And we figured out there was a study, which was done in UC Davis. And what they found is basically 92 percent of the new mothers reported at least one breastfeeding concern. And this is on day 3. Now here are those institute where they have lactation consultant. They have trained nurses, they have lactation consultant, they can go to in the hospital, but still all these mothers had all these issues.

And, by and large, in U.S. also they, they tend to use traditional hold because, that's been there for probably generation. So, God knows how many generation, but if mother had all these issues. So, on day 3, what issues were there? 52 percent mothers, they felt that they were not feeding well and the cohort was 532 first time mothers, so that is a huge cohort.

52 percent mothers, they were not feeling well at breast. 40 percent to 44 percent of mothers had breastfeeding pain, and 40 percent mothers had perceived lack of sufficient milk. So, they felt that I was not getting milk. Now, obviously, when in a developed world when you have a big Institute, like UC Davis hospital, who has trained lactation consultant, if those mothers were showing all the symptoms, and most of them left actually breastfeeding, so then, there has to be issue.

And I did not figure out this issue for first 5, 6 years when I was working in this NGO, but yes, you know, we did figure that it was the effectiveness of the breast, breastfeeding, which was the hindrance to mothers continuing breast milk or to improve wasting stunting and all those anthropometric measures. So that was important.




(Refer Slide Time: 16:39)

CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Growth Monitoring

NPTEL



CIARA  
Centre for Technology  
Alternatives for Rural Areas



**GROWTH MONITORING**

Monitoring by nurse, nutritionist, doctor

Freq visits for target wt gain, use of visit forms

**Objective!**  
Strict growth monitoring of child U3  
Check wt gain of pregnant women

Show babies' wt gain on growth charts to motivate mothers

1-1 counselling for PPA mot





Now, growth monitoring. So, growth monitoring was very important part of our program. So here is the, in this NGO, what we did is basically, we got all this the small young babies to our program, and then basically, we worked a lot on monitoring of this babies, growth monitoring.

And so here, we had social workers, who would basically take height and weight or length of these babies, then we had, and these are all lactating mothers. So, we had a program for lactating mothers, also, where we would teach mothers her nutrition, how to take care of herself, and then talk about breastfeeding and complementary feeding and all that, so this clinic was not just for young children, it was also for pregnant mothers and lactating mothers.

So, all these lactating mothers were bringing the children. Depending upon the weight gain, we could decide whether this baby would be seen in 2 days, 7 days, 2 weeks, 1 month, but we had a set protocol. So, these mothers when they would weigh their babies, then they would come to, like a doctor or nurse, and they would be basically the data would be taken from them.

Of course, the history would be there, we would do breastfeeding assessment. Imagine we were working in a very small room, so we did not have any privacy. Again, very contradictory to the place where I had come from where we had one huge room for one mother, there was so much of privacy, and unbelievable.

And here, when I tell mothers, show me breastfeeding, and so many times there were fathers there, there were some other people there. It was so difficult, we had lack of space. So, this

privacy is also kind of important in our setting that if anybody is coming to any clinic and if you want to assess breastfeeding it is important to have some space for mothers, but we did not have it as you can see it from our picture.

And then what would happen initially, we did not have any software. So, we would do everything by hand. We would plot all babies grow chart, we would teach mothers what food to eat for themselves. And if babies were more than 6 months old, we would tell them what to eat. But this was our clinic of monitoring visits. And our, basically the follow-up of these babies completely depend on the weight gain.

So, babies are not gaining weight we were seeing them very frequently. If babies were gaining weight, we would see them once a month. So that one-on-one counseling was very, very important in our program. Now, here, this is in that same clinic, once mother brought that baby, we would basically check the weight, that weighing scale was also very important.

Eventually we ended up buying a Seca because Seca was very, very Seca a German product weighing scale very expensive. So obviously, initially, when I came, it was, they had the Salter weighing scale. So, on Salter, every time we put that baby in a salter weighing scale, which I had not seen in U.S. at all. And I kept thinking that the baby was, that weight was going here, here, here every time baby moved it would, and I was used to seeing, 1-gram incremental weight gain on sophisticated digital machines weighing scale.

And I said I, this would not work for me. I mean, I had to see when 15-gram weight gain, and we could not obviously figure out on salter weighing scale, whether 15 gram weight can occurred in 1 day or 2 days, or whatever. So then eventually, we moved to a digital weighing scale, but my goal was to get Seca products.

So, once we got some more funding, we got some better weighing scales. And this one was basically checking the length. So, length checking was very, very important. And what I see, we are very strict on length. How baby's length are checked in U.S, because that is again, our bread and butter.

But what are we seeing in our program that all, a lot of these healthcare workers, it was very difficult to train them on length check. Because babies are very wiggly, they cry, they need a lot of this holding of the head holding of the knee. A lot of time babies would flex their knees, and they would bend their knees, so it was, it was important for us to do that. So that is

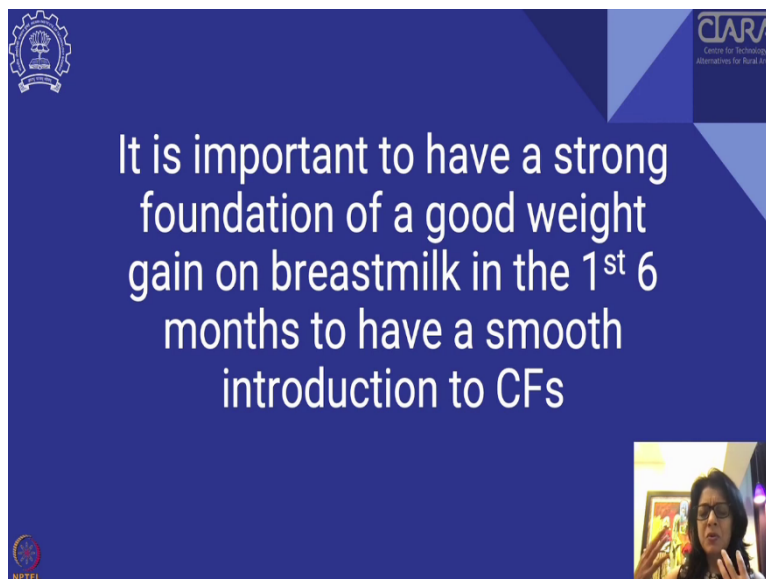
why like what I did, and lot of times what was to happen, there used to be lot of kind of length would be wrong.

So, when I would plot I said, no, no, this cannot be right length, because last week, it was this length. And this time, you cannot have an increment of 3 centimeter in 1 week. So, then I would know that we created a protocol, that this length would be checked by two different individuals.

So, then what we would do is basically we had two social workers. So, one person would basically check the length, and then the other person would plot it, and then we would have another person doing it again, checking the length properly again, second time, when there will be role reversal.

And we found that, there was not discrepancies. And then again, we would have third person doing it. So, that, I think, finally, they learned how to check length. So, it takes time. So make sure in your program, when you are Maternal Child Health Program, this length check is very, very important. You train your team, train your staff, how to check length. Because if your length is say changed by 2 or 3 centimeter, your child will go from normal to maybe MAM, or even SAM or even stunting. So, please, that is really, really important, especially in first, few weeks of age.

(Refer Slide Time: 22:58)



It is important to have a strong foundation of a good weight gain on breastmilk in the 1<sup>st</sup> 6 months to have a smooth introduction to CFs



Another thing was basically, so of course, now I spoke about breastfeeding. Now, obviously, with that kind of level of training of breastfeeding counseling to mothers, a lot of babies were becoming very tall, very big. Some of them were like, as I showed you in the picture, some of them were like becoming 10 kgs by 6 months of age.

But then those babies, when they are big, then they have good appetite. When they have good appetite, they will try everything. Whatever you give them, they will try it. But when you did not have a good growth in first 6 months of age, those babies were thin, those babies were cranky, those babies are not happy, cranky, not eating well, poor uptake of all different kinds of foods.

So, I strongly believe that if you want to have a good complementary feeding state, you start your foundation strong. What is a foundation strong means, that you make sure that the baby is breastfed well, get that baby to 9, 10 kgs, 8, 9, whatever 10 kgs is good. I mean, we have shown that results in so many babies.

We can target that because we want our children to be tall. And these are breastfed babies so I am not worried at all about the blood pressure or diabetes I am not worried at all. I do not know why people keep thinking whenever I put some healthy babies photographs were excellent at breastfeed, that oh, this baby's overfed, this baby is obese. You guys are not worried when the babies are less than third percentile 36 percent children are less than third percentile in India, but you are worried about children who are going more than 97 percentile on weight that too exclusively breastfeed.

So, I want to make sure that you guys understand that if baby is breastfeeding beautifully, and if they are gaining weight, there are multiple papers out there that the BMI is much better. These babies are growing faster on breast milk, and the BMI is lower at one year of age compared to babies who are formula fed. So, I do not want formula fed babies or those other babies, cow milk babies to grow fast. Because those are the babies who are going to develop diabetes and blood pressure.

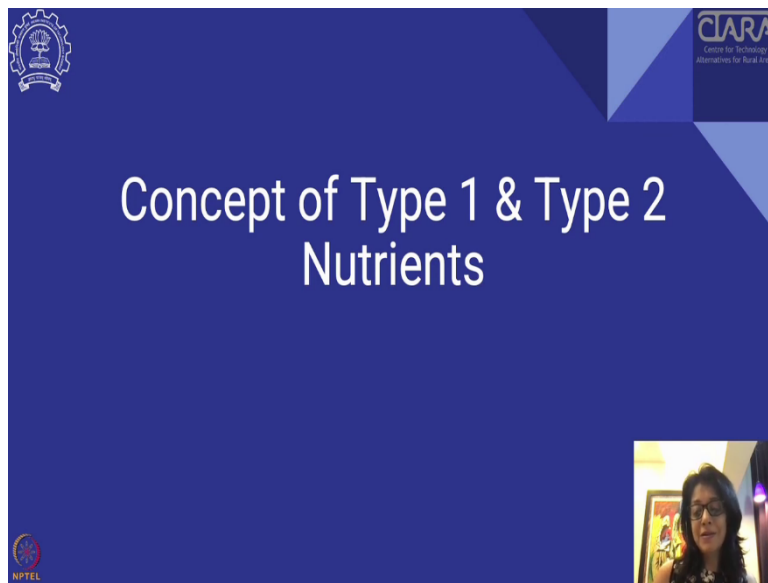
But yes, I want those breastfed babies to have amazing amount of milk transfer, so they grow tall, because I showed you and so many I will be showing more on when I talk about growth charts I will show you many more examples of how these babies grew leaps and bounds just on breast milk. So, it is important that you know, just focus on your first 6 months, a lot, then after your 6 months complementary feeding becomes much easier.

So here is your, so this is Annaprasham from one of the districts Sabarkantha district, and we had done that project in late 2018 2019. And you can see these babies was just so big so it was a joy for government, people to even feed them the complementary feeding. Because they would immediately take it, and there were just so, they would finish this, the whole thing, big appetite.

And even, same in the same function, basically, you can see how these baby size is looking so good, especially the middle one, so I think it is important. It is important before we talk about complementary feeding it is important that our children grow well.




(Refer Slide Time: 26:33)



CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Concept of Type 1 & Type 2 Nutrients

NPTEL



CIARA  
Centre for Technology  
Alternatives for Rural Areas

## 40 Essential Nutrients

Ca	S	K	Se	Vit-C	Vit-B <sub>1</sub> , Vit-B <sub>2</sub> , Vit-B <sub>3</sub> , Vit-B <sub>5</sub> , Vit-B <sub>6</sub> , Vit-B <sub>7</sub> , Vit-B <sub>9</sub> , Vit-B <sub>12</sub>
P	Cu	Vit-E	Mn	Na	
Zn	Fe	Vit-D	I	Mg	Ile, Leu, Val, Phe, Trp, His, Lys, Thr, Met
Vit-K	Cl	F	Vit-A	ω <sub>3</sub> , ω <sub>6</sub> , ω <sub>9</sub>	

NPTEL





Now, this complementary feeding, also, we learned a lot. Believe me that many times, many, many, times. Actually, most of the time, I would say, when these children were growing well on breastfeeding, but at 6 months, what would happen, their growth would stagnate. They would just not grow.

I mean, I would keep telling, asking my nutritionist. I said, why these children are not growing? What is happening? So, we figured out the reason children were not growing because we were again, just talking about “give kanji, khichdi, put a little bit of veggies in it” it was everything the same thing that what we were taught, and it was not helping and program. Children were not gaining weight.

And when this stagnation started in the weight, the length also started stagnating. So, I was thinking, my God, we have worked so hard on breastfeeding, children are like at 97 percentile 85 percentile for length now children are growing for weight, obviously, length is not going to grow.

So, we had to really come up with something solution for it. And what I realized, I am just fortunate is basically, I got exposure, or I would say, training of Dr. Michael Golden. So, here in 2011, we had one consensus statement from an Academy of Pediatrics, on management of SAM, we were creating guidelines for pediatricians and we wanted to publish in Indian pediatrics.

And that is when we found that lot of these children were basically and he discussed about type 2 nutrients, type 1 nutrients, how the SAM children are lacking in type 2 nutrients. And



when, so when I was attending those sessions, I realize it, okay, so child had lack of this type 2 nutrients in and that is why they became SAM.

And then when you are giving those type 2 nutrients more in the form of special foods, which are given to which are recommended by WHO for SAM children, it just kind of stuck to me that why not if we increase our type 2 nutrients in the diet of this 6 months old children and above in complementary foods, then you would not have those children going into type 2 nutrient deficiency.

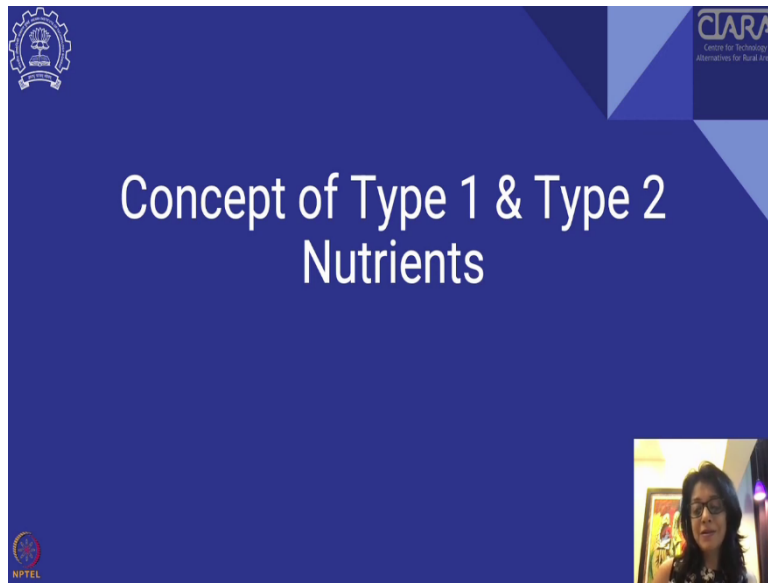
And, again, I will discuss about this type 1, type 2 nutrient in my other lecture. But, that is when like, it just kind of it rung the bell or I would say struck the light. So that maybe let us talk about this type 2 nutrient when we talk about foods. And obviously, he discussed Professor Michael Golden also discuss about 40 nutrients which are required in the diet. And in a lot of these programs that they keep talking about iron, calcium, all that, but none of the programs were discussing so much about the type 2 nutrient, and that is when we came up with this recipes.

So, this recipe are basically made from locally available, beans and seeds and nuts and legumes and leaves. Like, for example, drumstick leaves or currypatta leaves or any of those leaves. And obviously what happens is like when mothers start food at 6 months, their diet was so monotonous, they would just give khichadi, khichadi, khichadi. Rice dal, Khichdi roti dipped in milk, a little bit of vegetable here and there, that was absolutely monotonous.

No wonder our children were not gaining weight. Because we were recommending the same thing. "Give some khichdi, add vegetables, add vitamin A rich food" nothing it was we were not focusing on protein as much. And other types of nutrients like your magnesium your potassium your chloride so many other things, we were not focusing at all here, sulfur.


So, zinc, and because we had no knowledge, we had no knowledge about what food to give, which will give all this nutrition, and the food that children were eating was so starch-based it was very much starch-based, carbohydrate-based. And we realize, and I really thank Professor, Michael Golden for giving me that opportunity to understand the importance of type 2 nutrients. So, we told mothers and I will discuss about this in type 2 nutrient dense food, in my complementary feeding,

(Refer Slide Time: 31:12)



CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Concept of Type 1 & Type 2 Nutrients



NPTEL



CIARA  
Centre for Technology  
Alternatives for Rural Areas

# Cooking Demo

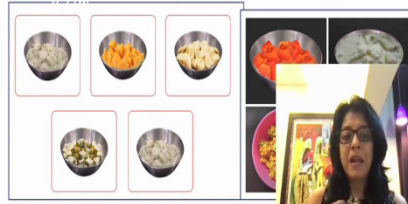
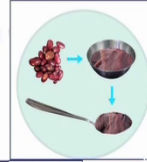
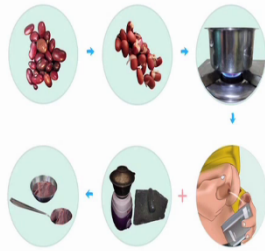


NPTEL



# Complementary Feeding: Key Consideration

CIARA  
Center for Technology  
Alternatives for Rural Areas



## Objective!

### COOKING DEMOS



Practical cooking demonstrations involving use of locally available, low cost nutrient dense foods  
Counsel mothers on responsive feeding





## Responsive Feeding with the Cooking Demo



And then of course, when we understood about this, type 2 nutrients, and of course, importance of type 1 nutrient also, we started creating cooking demos. So, what we would do, we would ask all these mothers do and this is complementary feeding is not just about the dietary diversity, but also about the amount how many times a baby should be eating, depending upon the age.

How to make those foods, so everything was very, very important. So again, it is one thing to tell mothers do this, do that. And another thing and a lot of time, we were telling that in the beginning, but my mother would say “my kid doesn’t eat anything”. Then we said, okay, let us start our cooking demos, so we would bring all this mothers in the clinic.

This is a picture from our other NGO that I have been working since 2013. I have continued to work here and this is a rule-based NGOs as Srimati Malti Danoka Trust. And here is our team, we have team about 12 people So, here is a doctor there is a nutritionist, she is a healthcare worker, these are social workers.

Then we have three, four nurses. So, here like we have a team of all these doctors, nurses, nutritionist, social workers, they all come under one roof and head these children to improve their anthropometric measurements that is, that was my impact is to improve weight, height and all that.

So here, we will teach mothers, exactly how to make from a locally available food, which was not very expensive. Because we want to make sure that these children, mothers can afford the food that we recommend. We cannot recommend something which is very

expensive, and expect them to buy those things. We cannot say that, okay, buy walnut or buy almond or buy this exotic food, we had to bring all this whatever is available locally.

So, then what we would do is we should, we would kind of show them all this ingredient, and we would talk about nutrient content of each and every food, and then we would feed the child right in front of the mother. So that responsive feeding was very, very important. Because lot of time mothers did not know how to feed, they would kind of make the child lie down and feed or they would force feed the child and all that was very, very important part of training of this, mothers.

So here we created from that, from this ingredient. We created the tikki, which we were giving to a little bit older child, so this is about, I think about 8 to 9 month old child and he is like enjoying that tikki which has egg, which has, you know, so many different green leafy vegetables and ragi, it has some ragi and then this is dal.

So, we also wanted to show them that dal should be thick it should be nutrient dense. Over here, I saw all these mothers were giving watery dal literally watery, they feel like “the baby will choke on it”. So through cooking demo, we would teach them how to make it and how to feed them.

(Refer Slide Time: 34:20)







# Home Visits



## Objective!



Junk food is the big problem all over the world. And that is true, even in urban, slum, rural areas, tribal areas. You go anywhere, there is so much of junk food available. And in our program, what we found that a lot of these babies were given, biscuit by 4 months of age. Mari biscuit and all these biscuits they were getting, and I was very much against it.

So, junk food awareness was a very integral part of our program. A home visit was another integral part of a program where we would our social workers, nurses, nutritionist would go to mother's home, and then basically see the environment around it. Because the environment was very important. We may tell them breastfeed, feed complementary food, but if it is very, very dirty, if it is very, if it is not clean, then babies would definitely get diarrhea and all that. So those are those are very, very important aspect of prevention of undernutrition.

So your you know, there is a home visit going on and we are seeing how mother is burping the baby, this is one point of 45 points, here she is making the baby sit on her lap, but we wanted to see how she does it in the home environment. And then another thing, what we would see is with a. And obviously, whenever we do home visits, we will always have this breastfeeding, doll and the baby doll, breastfeeding breast model.

And, you know, we would see whether she has prepared those powders or not, whether she has kind of kept it in a clean container, whether she is, whether there is any other issues going on in the house. How clean was the kitchen, whether they, how clean was the water, where was she storing it. So, there were, there was some 30,40 things that we were looking at, and we were analyzing that how these mothers were doing at home. So again, that very rich data.

(Refer Slide Time: 36:22)

The slide features a dark blue background. In the top left corner is the NPTEL logo. In the top right corner is the CIARA logo, which stands for 'Center for Technology Alternatives for Rural Areas'. The main title 'Electronic Data Monitoring' is centered in a large, white, sans-serif font. In the bottom right corner, there is a small inset video frame showing a woman with glasses speaking into a microphone.

This slide is divided into two main sections. On the left, there is a graphic with an orange gear and a hexagon. The gear contains the text: '02 Remote monitoring by doctors offline/secondary level Use of Salesforce software Use of engaging IEC material'. The hexagon is labeled 'REMOTE GROWTH MONITORING' and contains an icon of a doctor. Above this graphic, the text reads: 'Objective! Monitor children whether child is doing well remotely'. On the right, there is a screenshot of a patient record interface. The interface shows a patient profile for 'Patient TEMO4549'. The 'Patient Detail' section includes fields for Patient ID, Name, Gender, Date of Birth, Date of Birth, Age, Primary Care, Specialty, Project, and Referral Source. Below this, there are sections for 'Healthcare Details' and 'Contact Information'. A small video inset of the same woman from the first slide is visible in the bottom right corner of the screenshot area.





Now, last but not the least, of course, I would not call it last. One more point, which is the I will discuss, which is very important. But again, coming from U.S, I was used to electronic medical record. We were using it for a long time. And the first 4, 5 years, of course, when I came to India, I had to put everything on the paper. Documentation, growth charts, we had files, which, similarly how we would have it in U.S.

We would have file for each child, and we would not give that file to mother, because I was afraid that if I would give that file to mother, she would lose it. So, we would keep it in our clinic. Every visitor we had some so many questions, and we would fill out religiously and that is how we have learned growth monitoring, that is how we have learned what worked, what did not work.

But after 4, 5 years, we decided that we need to get software. Because unless you have electronic data monitoring, very, very difficult to analyze to keep taking care of those files, sometimes we would lose some of those files or sometimes they would be the paper was torn child was playing with that file, so we had to basically switch to electronic data monitoring.

So, we had this very sophisticated software, amazing software. And I am proud of that NGO, FMCH and I really appreciate Dorothy Wagle, who is the CEO of that FMCH. She is doing just wonderful work. She got everything streamlined. So not only the technical aspect of breastfeeding, complementary feeding is important, but streamlining the process is also very important.

Putting protocols in place, getting data collection, data monitoring, what works, what does not work, monitoring the program, evaluation of overall program, it is that is what she brought in, and that was her forte. Coming from U.S., I mean, that was completely her forte, so she got everything streamlined and I really appreciate. So, we got this amazing software,

And that all told us, it would automatically kind of graph the children on WHO growth chart. So as soon as, and it was all cloud-based. So as soon as healthcare worker put in weight and height, it would show up on our iPad or our tablet. Immediately, it would show up on my laptop, and I could show mother look whatever we told you, you did it, and see look at the result. She would be so happy to look at those growth charts.

So, I if you want to really kind of do behavior change mother, plot your growth chart. Plot your growth chart, because mother looks at a growth chart, if she finds out that baby has not gained weight from that growth chart, she will do anything. Whatever you tell her she will do it, but mother needs to know how the child is growing.

So do not just go by saying that “x grams weight gain should happen”. Yeah, of course, you tell her that I am expecting this much weight gain, but then show her. See, if baby gained 40 grams, this is where child is coming now. So, she understands because there is so much of myth in the practice out there not only in government sector but even in private pediatricians that they are saying “monthly weight gain should be 500 grams” that is completely wrong. Because if you plot that graph and show after one month, the child is gaining 500 gram mother will say “the line went down!” mother will say.

So, I recommend that please plot your graph. You tell her what is the expected weight gain. And if it is not gaining weight after showing the proper technique, then you figure out the problem. There is a issue. If there is no, if a functional issues taken care of then you figure out the organic cause, but this is organic cause means we have to find out any medical condition why babies are not gaining weight.

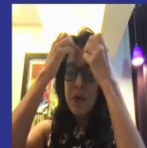
But if we have very poor target weight, then those babies are bound to get underweight in just 2 or 3 months, matter of 3 months. Even babies born 3.3 kg 3 kg those people become underweight, if you have target weight just 500 gram per month.

(Refer Slide Time: 40:35)

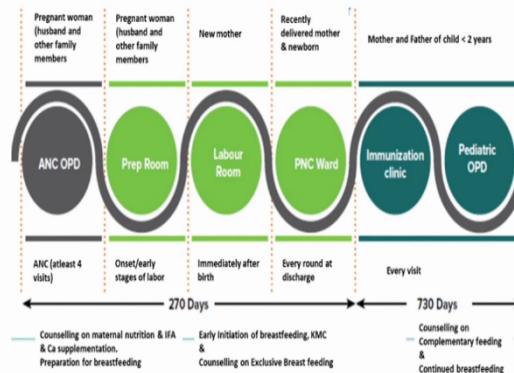


# Developmental Classes – Mommy & Me class

Motor, Visual, Auditory, Sensory, Vocal Stimulation Classes



## Point of Contact for MIYCN Counseling



So, again, my experience from U.S, that I brought to India was developmental classes. Because, over there, we have this mom and me class, where not only kind of young children would go to mom and me class, but even pregnant mothers would go to Lamaze class and so many other different class where she would stimulate that baby, how we have Garbha Sanskaar.

They also have their different ways of stimulating those babies in U.S. And I feel that why we are not using that Garbha Sanskar in our NGOs, and in our government setup, so important. Meditation, talk about, you know, good things, read good books, say some sholkas if you are an Hindu, say some prayers of any religion.

But, I feel that it is important because it passes on those important sanskars in children. And I do believe in a kind of talking to babies when they are in the womb. So, here is one of our setup it is again the same program, and this was a temple actually. We did not have such big place as you saw our clinic was so small, so, we did not have this setup.

So, we asked one of the temple in our area, if we could use that area to show this developmental aspect of to mothers. How to play with them, how to massage them, how to stimulate them, how to talk to them just everything. How to make some toys, so this all. And we would bring children of same age group. So that for example, this is mainly about say around 3 months or maybe 4 month old babies then from 6 months to 9 months, we would have a different program for development, pediatrics, we call it.

And then for older children we will have different programs. Because each child is at different developmental stage, so we would have different kind of plays or different advice for different age groups. So, here we are this healthcare worker is teaching how to massage the babies. So, again, these are for people who are running different programs and also for government. What are the point of contact for MIYC and counseling.

So, there are so many times that especially and I have not a pediatrician also attending this training. So, I want to show that you have ANC time. You can talk about MIYCN. ANC OPDs, then you have during the prep room the early stage of labor, you tell mothers that okay or even before she goes into labor during ANC time you talk about breast crawl, talk about, breast crawl or skin during cesarian.

Talk about labor room, in labor room. Talk about that, okay our baby is going to be born and we are going to put the baby on your tummy, so that we can start early initiation. So, these are important contact point where not only pediatrician but Asha, ANM, Medical officers everybody can basically focus on those MIYC and contact point. Then you have PNC Ward absolutely important time period.

When mother is in the PNC you know a post delivery she is in PHC or in hospital for two days. In some areas you have only for one day, that is fine one day 24 hours is enough keep teaching them cross cradle hold in 45 points. Anytime mother comes for immunization either at PHC level or wherever look at breastfeeding.

Do breastfeeding assessment, find out if any there is an issue, correct it. Unless you correct it mothers will continue doing wrong thing and you will not see good weight gain. And then any pediatric OPD. If she, If mother came to a pediatric OPD or any OPD for medical officers or any OPD if child came for a runny nose again ask about nutrition. Why do we only focus on runny nose and cough? Why are we only focusing on just pneumonia and diarrhea? Ask about why the child had diarrhea. Why did pneumonia have child get because there was a problem with breastfeeding.

So, talk about breastfeeding, talk about the technicality skill, not just whether she breastfeeds or not that is just are you feeding baby, are you eating or not? I mean yes, I would have eaten just one biscuit as I'll say I am eating. No, the quality is important. If you are breastfeeding, show me how are you doing breastfeeding, show me.

Because if you do not show her proper skill, you may correct your pneumonia, you may correct your diarrhea, but she will go back in the community and she will come back in 2 weeks with the same issue because you have not tackled the root cause. The root cause is poor nutrition, causing child to have pneumonia, diarrhea or any illness even runny nose and cough.

So, while we are discussing about vaccine and all that, please do not forget your basic fundamental of nutrition. And that is under 6 months is breastfeeding skills and 6 months onward is complementary feeding and continuation of breastfeeding. Okay, so here I am going to end my session. I just talked about the framework that we worked under.

And if we can replicate this framework in our government system, other NGOs, other organizations, you will definitely see results, why not because here we are really actually looking at the problem and solving the problem at the root cause. So, I hope you enjoyed this session, and I will see you again for the next session. Thank you.