

USE OF VILLAGE BASED WOMEN VOLUNTEER LINK WORKERS IN IMPROVING MATERNAL AND CHILD HEALTH INDICES

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Abstract

To improve the health care outreach in villages, an experiment was carried out in 5 villages (total population 4400) of the Narsapur Mandal of Medak district of Andhra Pradesh, which are not serviced by the integrated child development services (ICDS). Local women (one per village) 7th standard pass, were trained in aspects of preventive and curative health care, and nutrition. These women advise the community, particularly women, on health, nutrition, sanitation and family planning. They register all pregnant women, ensure antenatal check-up, compliance with regard to iron folic acid tablet intake, record blood pressure, identify at-risk pregnant women and treat minor ailments for which the community pays them. They interact with the ANM during her monthly visits. Records of deaths with age and cause, and births with birth weight (wherever possible) are maintained. 'Dais' were also trained so that the two women can work in tandem. While no monthly stipend is paid, daily wage is given for days of training and small incentive money of Rs.5/- for each vital event reported, and Rs 10/- for motivating mothers for family planning. The experiment was started in June 1998 and is continuing. A repeat survey done after 3 years showed remarkable improvement in the mothers' knowledge of nutrition, and practices related to maternal diet, and child feeding and reduction in morbidity and in the incidence of vitamin A deficiency (Bitot's spots) in preschool children. There was only marginal improvement in child nutrition, and no improvement in the incidence of low birth weight, which continues to be around 20%. Yearly records show that over 90% women undergo more than 3 antenatal check-ups and most infants are immunised. There is an increase in institutional deliveries, but still 40-50% deliveries are in villages. Over the years there has been marked reduction in stillbirths and neonatal and infant mortality.

Introduction

Despite a vast network of primary health centres and sub-centres, health care out reach in rural areas of India is totally inadequate. Well-trained, village health workers (bare foot doctors), is an option which has been tried internationally with varying degrees of success¹⁻⁶. However, creation of yet another cadre of stipend worker has not been found to be feasible.

To improve the health care outreach in villages, the Dangoria Charitable Trust (DCT) is carrying out an experiment in 5 villages (total population 4400), of the Narsapur Mandal of Medak district of Andhra Pradesh to examine the feasibility of using local women volunteers as link workers and entrepreneurs- Health and Nutrition Entrepreneurs and Mobilisers (HNEM). These villages are not serviced by the ICDS⁷.

Methodology

HNEMs' selection, training and functions

Local women (one per village) 7th standard pass, were selected in consultation with the community. Though initially it was hoped to select 10th standard pass women, the minimum qualification had to be reduced to 7th standard since in some villages women with higher qualification, and those willing to work in the community were not available. The women were trained in aspects of preventive and curative health care, and nutrition. The duration of initial training (6 days a week) was 2 months, followed by 8 months, twice weekly training, and then once a month contact training. The syllabus included both the theoretical and practical aspects of maternal and child health and nutrition, identification of common infectious and non-infectious diseases and at risk cases for referral, treatment of minor ailments and rendering first aid. At the end of the above-mentioned training of one-year, a medical kit, blood pressure apparatus, a stethoscope, and a baby weighing balance were given.

These women advise the community, particularly women, on health, nutrition, sanitation and family planning. They register all pregnant women, ensure antenatal check-up, compliance with iron folic acid tablet intake, record blood pressure, identify at-risk pregnant women and other cases and treat minor ailments. They interact with the ANM during her monthly visits. Records of deaths with age and cause, and births with birth weight (wherever possible) are maintained. While no monthly stipend is paid, daily wage is given for days of training and small incentive money of Rs.5/- for each vital event reported, and Rs 10/- for motivating mothers for family planning. The community pays these volunteer workers for treating minor ailments like cough, cold, mild fever, diarrhoea, scabies etc. by prescribing or giving appropriate drugs, and for rendering first aid services. HNEMs also accompany pregnant women for check-up when requested by the patient. The experiment was started in June 1998 and is still continuing.

Dai (traditional birth attendant) training

Dais' (Traditional birth attendants) were also trained so that the two women can work in tandem. One dai from each village was selected. She

was orientated to relevant aspects of health and nutrition and was given practical training in safe delivery. Thrust was on early initiation and exclusive breast-feeding for the first six months. A delivery kit was given to the dais.

Impact assessment

Both the process and outcome were assessed as follows:

- knowledge, attitude, practice (KAP) survey of mothers with pre-school children done initially, and after 3 years to find out the mothers' acceptance of the HNEMs, their knowledge and practices regarding health and nutrition, and health care seeking behaviour,
- malnutrition in preschool children. Children in the age group 6-24 months were weighed initially and at the end of 3 years, and weight for age classification used in the ICDS centres applied to identify Grades II and III malnutrition,
- monsoon morbidity survey of preschool children in alternate years (initial, and two follow-ups) was done by inquiring about episodes of diarrhea, respiratory infections (cough, cold, fever) and skin ailments, during previous two weeks. The survey was done during the first week of the three monsoons months- July, August and September,
- records of deaths and births to assess the incidence of perinatal, neonatal and infant mortality,
- record of birth weights, where possible. Many hospitals including the government community health centre, do not take birth weight. Birth weights also could not be recorded for women who migrated to another village for delivery,
- record of place of delivery.

Important findings are discussed in this paper. Detailed paper has been published⁷.

Observations

Utilisation of the HNEM's service

The community in general was satisfied with her service but disappointed that she neither gave free drugs nor gave injections. Villagers generally have great faith in injections, and this belief is exploited by some medical practitioners. Two HNEMs also conducted deliveries. In the repeat survey after 3 years, 98% mothers were aware of the HNEMs and 70% had utilised her services. One HNEM migrated to another village and another from the same village trained. One other HNEM completed ANM training and took a job in a tribal school in a near by village. However, she visits her village every Sunday, and the work continues with the help of the 'dai' who is an intelligent woman. One HNEM was selected for health worker's

training under the 'VELUGU' project of AP government and is now working as their functionary in the village.

Improvement in knowledge of mothers with preschool children

At the end of three years there was significant improvement in mothers' knowledge, and practices regarding food consumption during pregnancy, food taboos during pregnancy, breast-feeding and complementary feeding (Table 1).

Parameter	Initial-Winter 1997	Final- Winter 2000
Sample	289	220
Pregnancy-Food consumed		
More than usual	12.5	43.2
Less than usual	54.7	7.3
Food taboos-pregnancy	54.3	19.1
Breast feeding day 1	16.6	59.5
Complementary feeding 4-9 months	39.6	60.0
2 doses of vitamin. A	32.1	51.4

Immunisation coverage

Immunisation coverage was good to start with and improved after intervention (Table 2).

Complete (3 doses)	Initial-Winter 1997	Final- Winter 2000
Polio, DPT	85.8	93.5
Measles	61.6	80
BCG	91.7	95.9

Malnutrition in preschool children

In the initial survey, malnutrition was more in children <24 months as to compared those >24 months of age (Table 3). This difference was not seen in the repeat survey due to reduction in the degree of malnutrition in the younger age group. However, the improvement was statistically not significant.

Year Age-Months	1997		2000	
	Number	%	Number	%
<24	145	25.5	110	17.3
> 24	144	14.6*	108	16.7
Total	289	20.0	218	17.0

* Significantly different from < 24 months children in 1997

Morbidity during monsoon- July to September

Morbidity (as judged by illness during the previous 15 days of the survey done during the first week of the month), due to diarrhoeas, respiratory infections and skin infections tended to be highest at the time of the onset of monsoon (July), but decreased by August⁷. Morbidity showed

Type	1998	2000	2002
Sample	673	825	731
Diarrhoeal	27.9	10.7	8.3
Resp.Infec.	58.7	47.6	19.2
Skin Infects.	11.0	2.4	3.8

significant reduction over time 1998-2002 (Table 4). There was reduction even in the duration of diarrhoea per episode⁷. The reduction in respiratory infections without any specific intervention may be due to relatively drier monsoons during the years 2001 and 2002.

Health care seeking practices, antenatal check-up and institutional deliveries

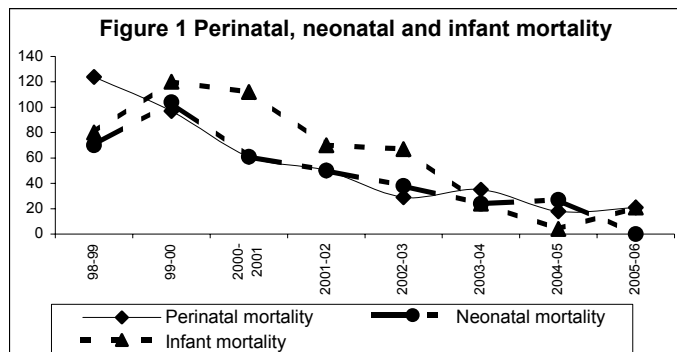
In the baseline survey, most women reported consulting private doctors for health problems and antenatal checkups, and paying them⁸. The main reason for preferring private doctors to government centres was ‘better treatment’. This included giving unnecessary injections which people demand. In the final survey almost all the mothers reported undergoing at least one antenatal check up. Ninety one percent reported 3 checkups. The percentage of institutional deliveries has increased from 37% in 1997-98 to over 50%. However, many women who come for antenatal check-up also prefer to deliver in the village because of the cost involved in private hospitals and poor service in government hospitals.

Birth weight

Birth weight could be recorded only in 50-60% children for reasons sited earlier. The %age of children with birth weight less than 2.5 Kg varied between 18.5 and 22.3. Though this average is lower than the national average of 30% there has not been much improvement till the year ending 2004-2005. Some improvement was seen during 2005-2006 (data recorded subsequent to the symposium).

Perinatal, neonatal and infant mortality

Remarkable improvement in the incidence of perinatal, neonatal and infant mortality has been seen over the years (Figure 1). While perinatal mortality showed steady decline, neonatal and infant mortality showed transient increase, perhaps due to saving of weaker children from death in the perinatal period.



Discussion

The volunteer link workers’ model is a low-cost model for health care delivery, which can be replicated even through ICDS with some training of anganwadi workers. A wider coverage and lesser dropout rate will give

better results. Institutional support and supervision are needed to ensure proper functioning of the health workers. Presence of 2 workers, including one male worker may help, to ensure continuity if one leaves. Poorly trained registered medical practitioners (RMPs) who come and go are a threat. HNEMS interact individually, but lack confidence to hold meetings with mothers without help from the organisation. Institutional deliveries need to increase. Affordability seems to be the major problem, since communication and transport have improved considerably in recent years. Since speaking in the symposium, the government of AP has introduced a new scheme by which all women who deliver in hospitals (government or private) get a sum of Rs 1000/-. They also get 3 free bus passes to come for antenatal check-up. With this intervention the institutional deliveries seem to have gone up. The real challenge is nutritional improvement of the mothers and children. Imaginative interventions involving a combination of awareness at all levels regarding perils of neglecting nutrition, and access to at affordable price to diverse foods are needed.

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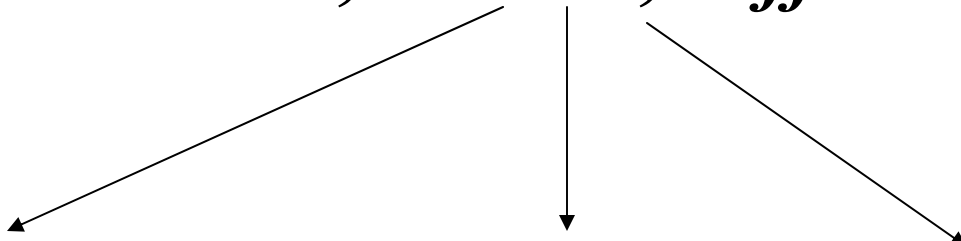
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Health and Nutrition Security

Awareness, Access, Affordability



Balanced diet (Diverse foods) **Safe environment** **Health care outreach**

Caring practices

Rural Women as Health and Nutrition Entrepreneur and Mobiliser-(HNEM).

HNEM is a trained human resource for the village who serves as a link between medical professionals like ANM and doctors. No salary or stipend is given. The community pays her for drugs and a little more for her services. She works because it brings her prestige and may be little money while continuing to do her other economic activities. In the same village the `dai' is also trained so that the two women can work in tandem.

Location

- **Five small Remote villages in Narsapur mandal of Medak district in AP, not serviced by the ICDS. Total population-4400.**
- **Female literacy in the villages 10%**
- **Intermittent appearance of an RMP. 95% consulted private doctors. Project was initiated in June 1998 after a benchmark KAP survey of mothers with PS children done.**

Selection of HNEMs

In consultation with the community. Min. qualification: 7th class pass.

Training

Five days a week for 2 months, followed by twice a week during DCT hospital OP- 8 months. Now once a month. Theory and practice in health and nutrition, first aid.

At the end of training a medical kit, BP apparatus and steth., and baby- weighing balance given.

Dai training

Dais were orientated to relevant aspects of health and nutrition and practical training in safe delivery. Thrust on immediate and exclusive breast feeding.

Dais were given delivery kit

HNEMS and dais work in tandem.

Responsibilities of HNEM

- **Register pregnant women, ensure antenatal care (monthly checkups, iron folate intake, immunisation) and advise the women on maternal and child health and nutrition. Motivate for institutional delivery, and family planning. Identify at-risk cases of pregnancy and illness**
- **Treat minor ailments, first aid. Assist with delivery. Link up with ANM during monthly visits for immunisation.**
- **Record deaths with age and cause, and births with birth weights, record monsoon morbidity in children. Small payment for reporting deaths, births and FP motivation.**

Impact assessment

Both the process and outcome were assessed

- **KAP survey of mothers with Pre-school children done initially and after 3 years.**
- **Monsoon morbidity survey of PS children in alternate years. Initial, and two follow-up**
- **Records of deaths and births**
- **Record of birth weights, where possible**
- **Record of place of delivery.**

Utilisation of the HNEM's Service

- **Satisfied with her service but disappointed that she neither gave free drugs nor gave injections.**
- **Two HNEMs also conduct deliveries.**
- **After 3 years 98% mothers were aware of the HNEMs and 70% had utilised her services**
- **One HNEM migrated and another from the same village trained.**

Improvement in knowledge of mothers with PS children. % respondents

Parameter	Initial- Winter 1997	Final- Winter 2000
Sample	289	220
Pregnancy-Food consumed		
More than usual	12.5	43.2
Less than usual	54.7	7.3
Food taboos-pregnancy	54.3	19.1
Breast feeding day 1	16.6	59.5
Compl. feeding 4-9 months	39.6	60.0
2 doses of vit. A	32.1	51.4

Immunisation of children

Complete (3 doses)	Initial-Winter 1997	Final- Winter 2000
Polio, DPT	85.8	93.5
Measles	61.6	80
BCG	91.7	95.9

Moderate and severe Malnutrition in Preschool Children-ICDS criteria

Year	1997		2000	
Age- Months	Number	%	Number	%
<24	145	25.5	110	17.3
> 24	144	14.6*	108	16.7
Total	289	20.0	218	17.0

Sig.lower than <24 months, $P < 0.05$

**Morbidity during monsoon previous 15 days.
Overall, 3 months-July, Aug. Sept.**

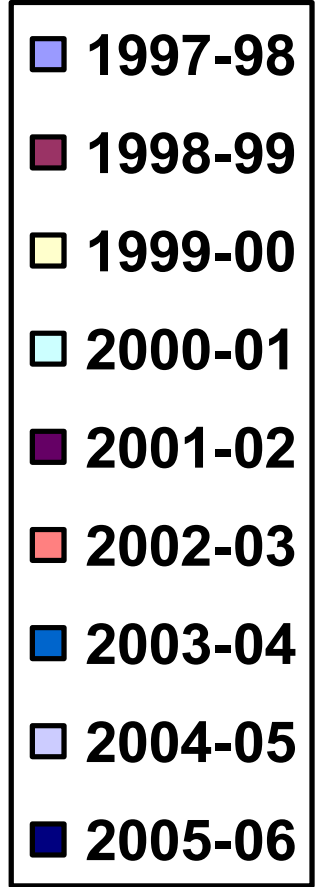
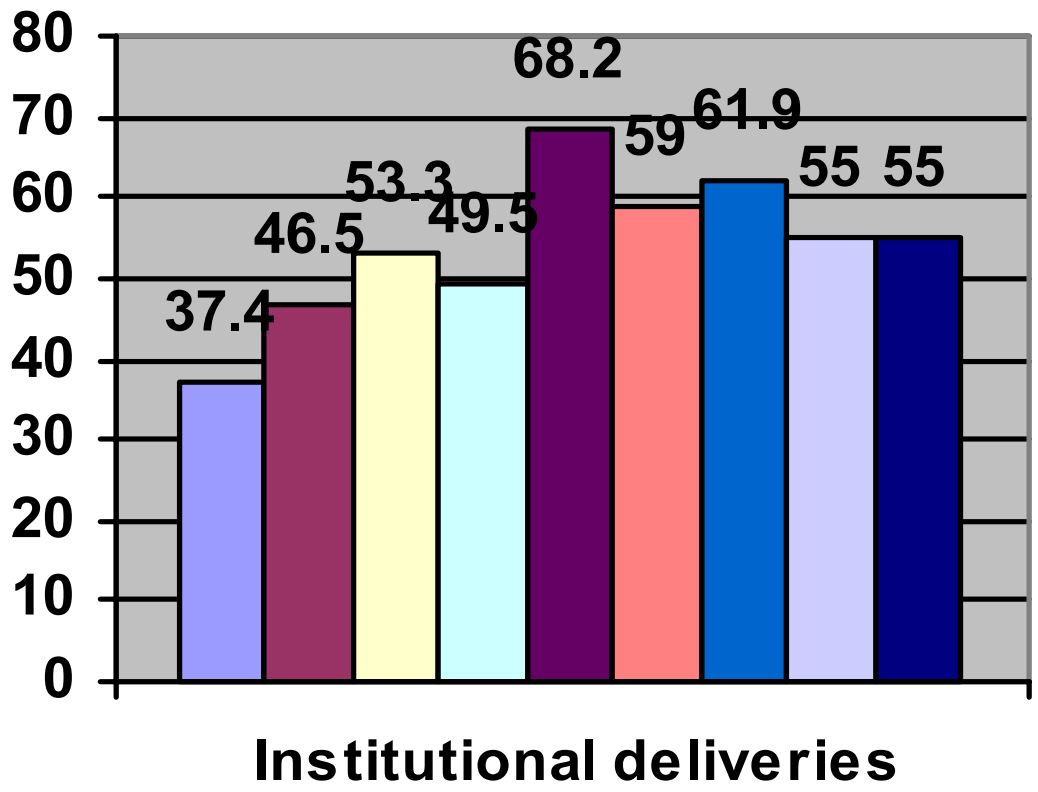
% Children

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Diarrhoeal	27.9	10.7	8.3
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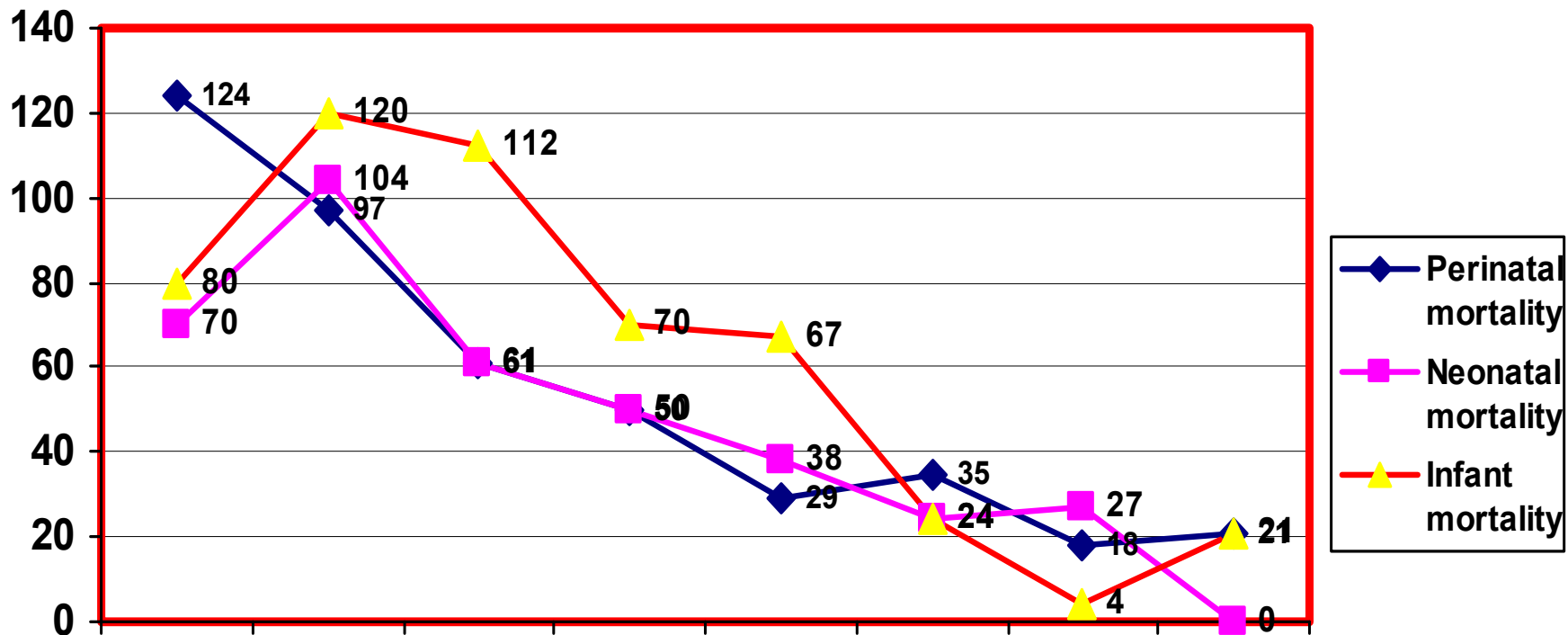
In all the years morbidity was highest at the onset of monsoon.

Institutional Deliveries %

Year	98- 99	99- 00	00- 01	01- 02	02- 03	03- 04	04- 05	05- 06
Tot Dels	88	124	99	126	105	86	111	95
Insti tutio nal	46.5	53.2	49.5	68.2	56.2	60.5	55.0	55.0



Perinatal, neonatal and infant mortality



Year	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06
Del	105*	124	99	126	105	84	111	95

Comments

- **A low cost model which can be replicated even through ICDS with some training of AWW**
- **Wider coverage and lesser escapees will give better results.**
- **Institutional support and supervision needed**
- **RMPs are a threat**
- **HNEMS interact individually. Do not hold any meetings with mothers without help.**
- **Institutional deliveries need to increase-affordability major problem.**

Maternal Nutritional Status and Perinatal-Neonatal Mortality.

Retrospective study between June 1998-Sept.2003.

Period A June 1998-April 2001

Period B May 2001- Sept 2003

Method: Structured questionnaire and physical examination of all mothers who had delivered.

Grp I, mortality, Grp II No mortality

Factors which showed significant correlation

- **Pre-term birth**
- **Type of delivery- forceps**
- **1st parity**
- **Delay in initiation of breast feeding**
- **Birth asphyxia- No cry at birth**
- **Height less than 145 Cm**
- **Sign of anaemia- pallor, fatigue**
- **Less than 3 antenatal check-ups**

Acknowledgement

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- **Colleagues: PVVS Murthy,
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THANK YOU