

# National Vector Borne Diseases Control Program

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Public Health Resource Network

# Learning objectives

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- Basics of Malaria - the disease
- Components of Malaria control program
- How to prepare a District Malaria Action Plan

# 6 diseases under NVBDCP

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1. Malaria
2. Filaria
3. Chikungunya
4. Dengue
5. Kala-azar
6. Japanese encephalitis

# Global Scenario

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- 40% of the world's population under threat
- Annually 300-500 million clinical cases and 1 million deaths
- Pregnant women and children under five are the most vulnerable.
- Loss of productivity, and high school dropouts
- Malaria and poverty are interrelated in a vicious cycle

# Malaria and India

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- Highest cases and 2<sup>nd</sup> highest deaths in SEAR
- Northeast states, West Bengal, Orissa and central India (CG, Jharkhand) contribute 80% of cases

# In Orissa

## Major Parasites

*P. vivax*

>60%

<15%

*P. falciparum*

≥ 40%

>85%

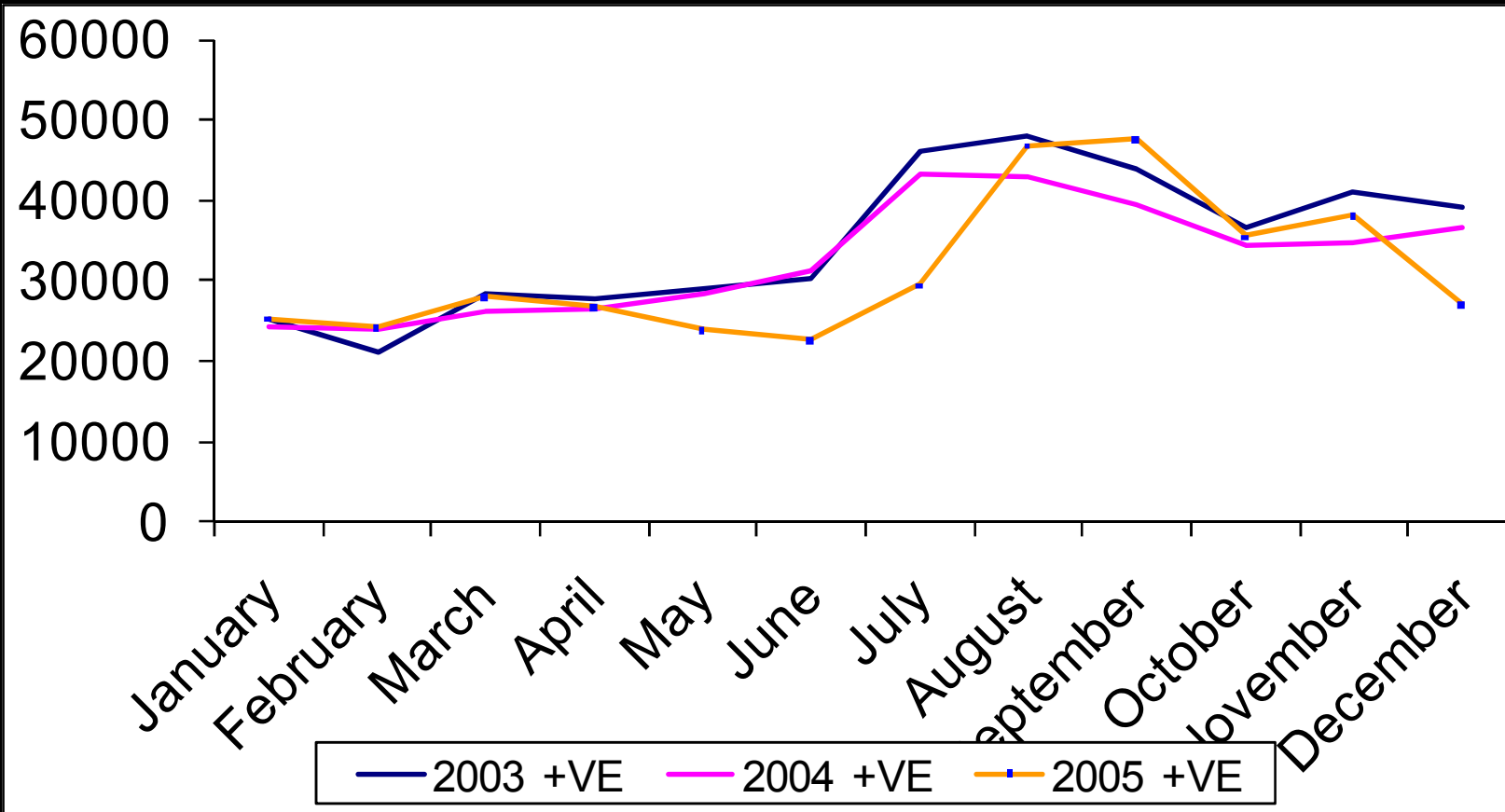
## Major Vectors

*An. culicifacies*

*An. fluviatilis*



# Malaria transmission



# Conducive climatic factors

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- June to December
- Temp : 15 to 37° C
- Humidity: 50 to 90 %
- Rainfall : 21 to 260 mm



# Malaria epidemiological indicators

## ABER : (Annual blood examination rate)

No. of blood smears collected during the year X 100

Population covered under surveillance

## SPR: (Slide positivity rate)

No. of blood smears found positive for malaria parasite X 100

No. of blood smears examined

## SFR: (Slide falciparum rate)

No. of blood smears found positive for P. falciparum X 100

No. of blood smears examined

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**P.f %: (P.falciparum percentage)**

No. of blood smears found positive for P. falciparum X 100

No. of blood smears found positive for malaria parasite

**API: (Annual parasite incidence)**

No. of blood smears found positive for malaria parasite X 1000

Total population under surveillance

## High risk area - criteria

- 1) Recorded deaths due to malaria (clinical/microscopic) during any of the last 3 years with evidence of locally acquired infection in an endemic area
- 2) Doubling of SPR : during last 3 years provided the SPR in 2<sup>nd</sup> and 3<sup>rd</sup> year reaches 4% or more and where SPR does not show the doubling trend as above but the average SPR of the last 3 years is 5% or more
- 3) Falciparum proportion is 30% or more provided the SPR is 3% or more during any of the last three years
- 4) Any area having a focus of chloroquine resistant to P. falciparum
- 5) Tropical aggregation of laborers in project areas and new settlement in endemic/receptive and vulnerable areas

# Illness of fever

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## Typical features:

Fever with chills - daily/alternate day

- Fever is associated generally with headache and vomiting
- Fever comes down with profuse sweating
- Leaves the patient with generalized weakness and discomfort

## Typical malaria may not be seen always

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- Hence whenever a case of fever is seen without any other signs/symptoms such as rash /diarrhea /cough etc. it may be thought in the line of malaria
- Hence early diagnosis (Microscopy/RDK if not possible then clinical) and complete treatment for malaria is advocated

# 4 major strategies to control malaria

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1. Early diagnosis and complete treatment (EDCT)
2. Integrated vector control (IVC) measures
3. Behavior change communication (BCC)
4. Capacity building

# Early Diagnosis and Complete Treatment

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- Anti-malarials are available at the community level - FTD/DDC, Sub-centers besides PHCs/CHCs & hospitals
- Irrespective of age and sex full course (three days) Chloroquine (CQ)/ACT is given after taking the blood film
- Pregnant women CQ is given (No ACT & PQ)
- Complicated cases are treated with quinine

# In high risk areas

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Malaria in these areas may be life threatening

Hence radical treatment (RT) is given

(Chloroquine 3 days + Primaquine single dose on the 1<sup>st</sup> day)

What these drugs do?

- Chloroquine kills the parasite in the blood and relieves the patient
- Primaquine kills the gametocytes and checks the transmission



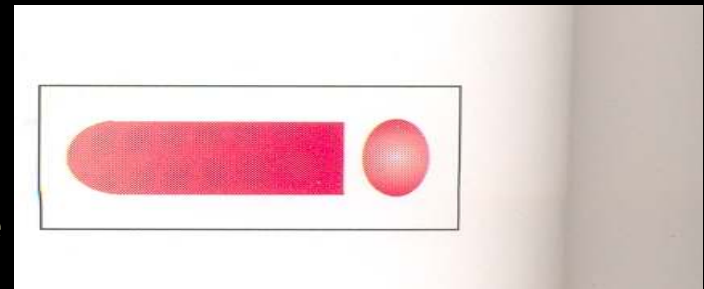
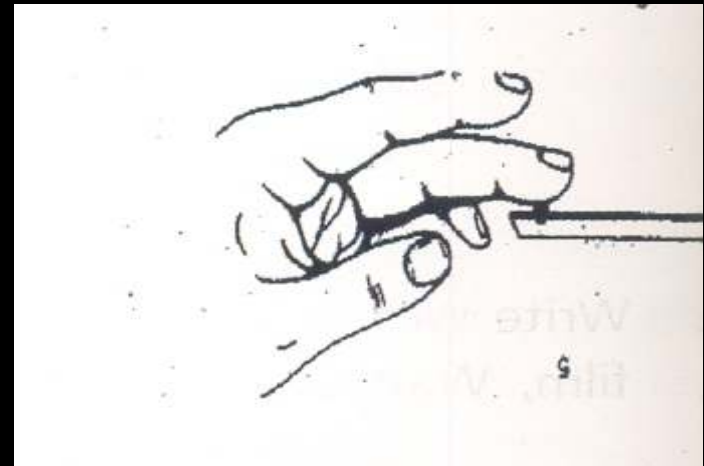
# Under NVBDCP

## Following antimalaria measures provided by Govt. Health Facilities

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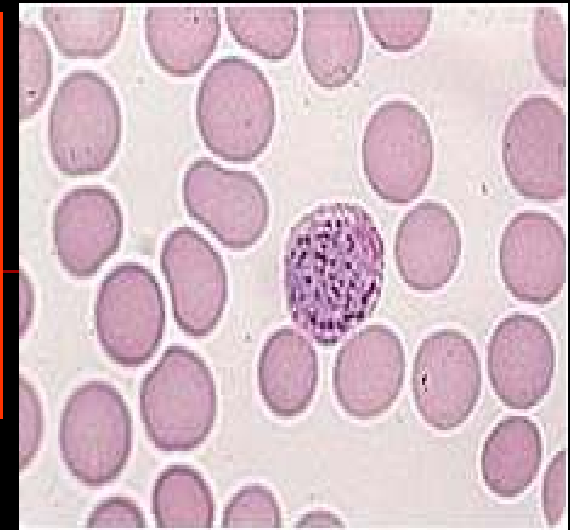
Blood smear (BS) collection and examination

- MPHW/ANM/FTD/collect BS from fever cases
- Prepare thick and thin smears
- Send to malaria microscopy centre





Red blood cells are affected by the malaria parasite

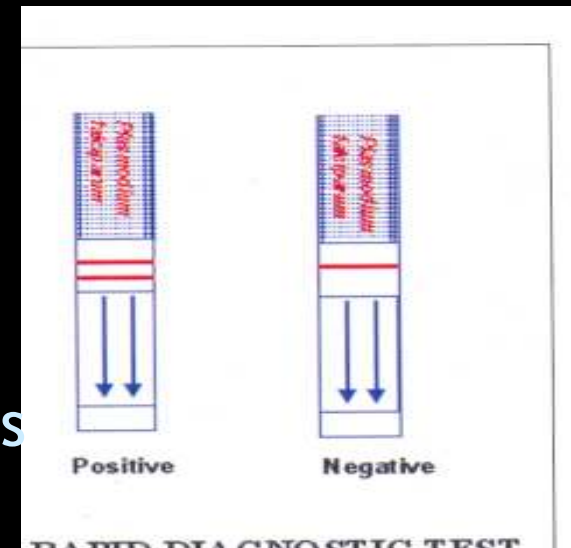


Other facility for blood examination is Rapid diagnostic test (RDT) by RDK

RDK is supplied to remote inaccessible areas

With short training one can conduct this simple procedure

Maximum 15 minutes is needed to get the result



Give Radical treatment (RT), If the blood smear found to be positive for malaria

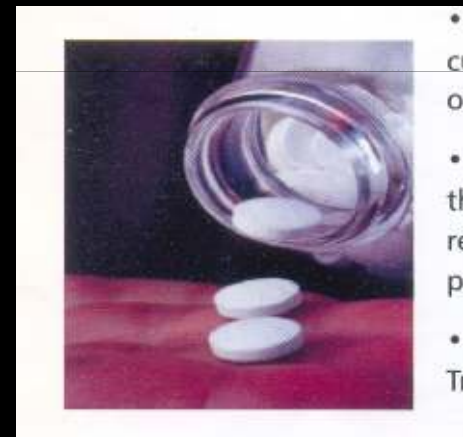
~~For RT both Chloroquine and Primaquine (CQ + PQ)~~  
are given

Combi-blister packs are available for adult patients

PQ is not to be given to Pregnant women and infants

Antimalarial given free of cost

**Caution: Don't give in empty stomach**



# Integrated vector control

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## 1. Anti-larval measures

- Source reduction
- Chemical control
- Biological control

## 2. Anti-Adult measures

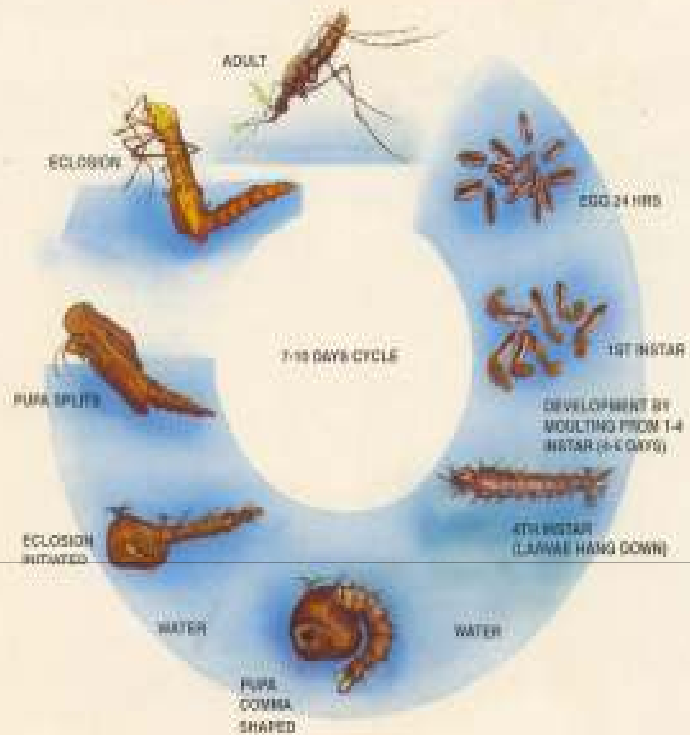
- IRS (Indoor Residual Spray)
- Space spray

## 3. Personal prophylactic measures

- Use of repellants
- Use of Insecticide treated mosquito nets (ITMN)

## 4. Environmental engineering

LIFE CYCLE OF ANOPHELES MOSQUITO



Tanka



Cannels



Irrigation channels



Stream



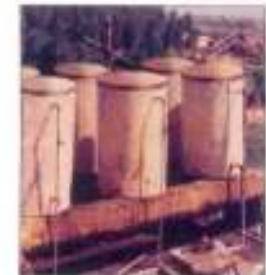
Swampy areas



Unused well



Rice Fields



Over head tanks

Eliminate  
breeding sources



# Larvivorous fish : Guppy and Gambusia



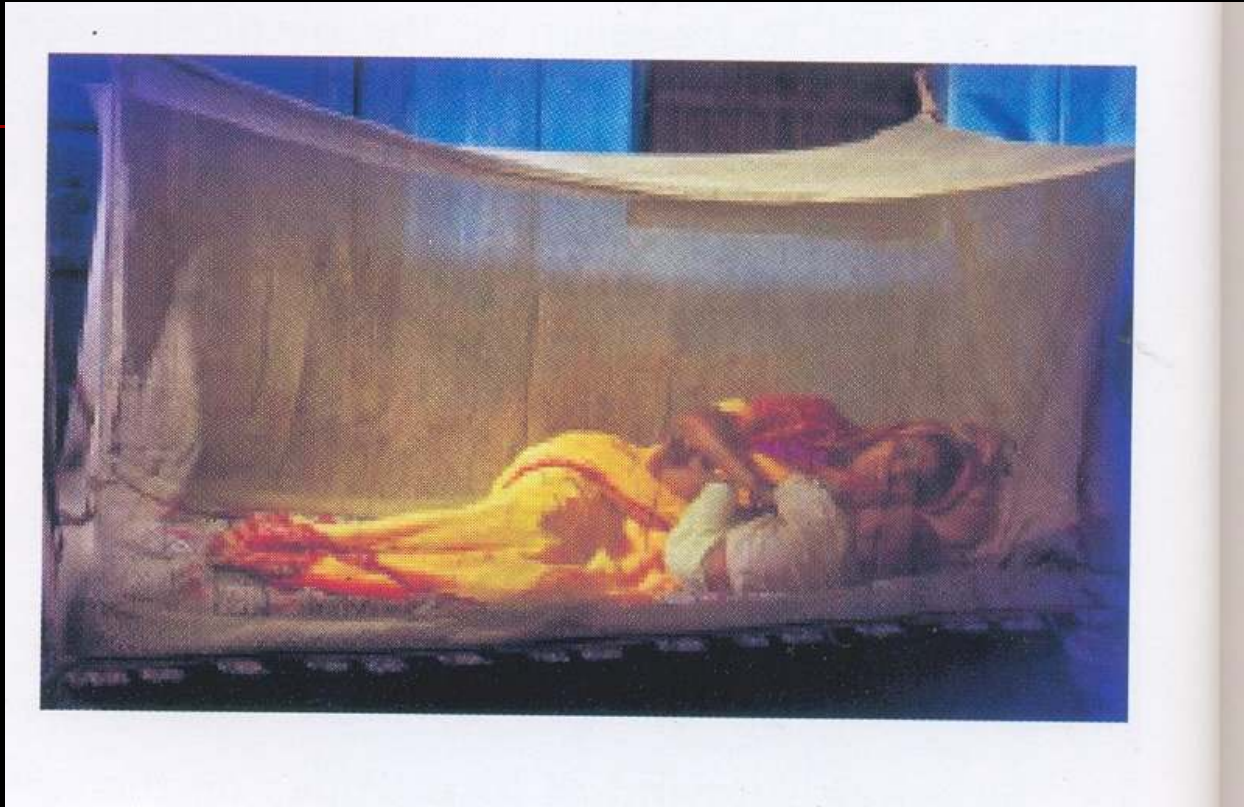
# Vector control through IRS

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- Malaria cases increase during rainy and after rainy seasons
- Hence we do IRS before rainy season (by May 15<sup>th</sup>) and after rainy season (by 15<sup>th</sup> Sept)
- We must know and communicate the correct message to the community on IRS



# Insecticide treated bed nets



If adequate number of nets are not available in the family then on priority basis protect the pregnant mother and children



# Behavior Change Communication

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## ■ Objectives:

1. Awareness generation
2. Demand generation
3. Behavior change
4. Community participation

# Remember

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Serious malaria patients may have any of the following symptoms :

- Patient is abnormally sleepy
- Difficult to wake or confused
- Patient is unable to stand or sit

**With negligence patient may die**

# Awareness on following points:

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- Fever is the main symptom
- How to suspect complicated malaria
- Mode of spread of malaria is by mosquito
- Stagnant water as source of mosquito breeding

# We have to communicate:

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- Importance of EDCT
- Harmful impact of not getting timely treatment
- Drug compliance
- Early referral of severe cases
- Integrated vector control measures

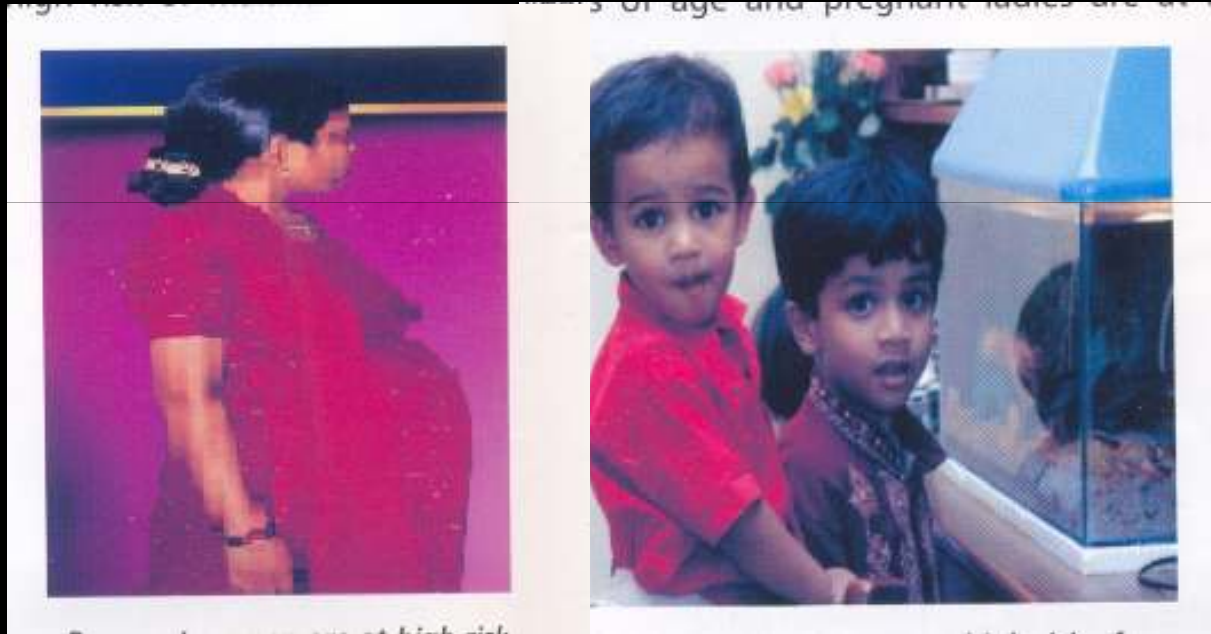
# Gaps and Constraints

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- Rise in Pf%
- Availability of drugs
- Drug resistance
- Awareness
- Community participation

# Let us protect the most vulnerable

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# Thanks