Patient Involvement in Medication Prescription and Administration’

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Objectives

- Prescribing challenges
- understand the meaning of medication error and causes of medication errors.
- Medication use processes
- Understand a doctors' responsibilities when prescribing and administering medication
- Understand the importance of involving the patients and their relatives in medication prescription and administration
- Learn ways to make medication use safer

Definition of Terminologies

- Adverse drug reaction (ADR)
  - A response to a medicine which is noxious and unintended, and which occurs at doses normally used in humans for the prophylaxis, diagnosis, or therapy of disease or for the modification of a physiological function
  - Any noxious effect resulting from the use of the medicinal product at normal doses within optimal conditions of use (non-preventable events)

- Medication error
  - A failure in the treatment process that leads to, or has the potential to lead to, harm to the patient
  - A preventable adverse drug event

- Patient safety incident
  - Event or circumstance which could have resulted, or did result, in unnecessary harm to a patient

- ‘Prescribing’ is used to describe many related activities, including supply of prescription only medicines, prescribing medicines, devices and dressings and advising patients on the purchase of over the counter medicines and other remedies.
- It may also be used to describe written information provided for patients (information prescriptions) or advice given.

WHY SHOULD WE INVOLVE PATIENT IN MEDICATION PRESCRIPTION AND ADMINIATRATION?

WHAT IS MEDICATION ERROR?

“any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer”

Prevalence

- A United Kingdom study found that 12% of all primary care patients may be affected by a prescribing or monitoring error over the course of a year, increasing to 38% in those 75 years and older and 30% in patients receiving five or more drugs during a 12-month period.
- Overall, 5% of prescriptions had prescribing errors.

- A Swedish study found a medication error rate of 42%. However, two-thirds were related to a failure to state the purpose of the treatment on prescriptions and only 1% of errors resulted in an incorrect dose.
- A study from Saudi Arabia reported that just under one-fifth of primary care prescriptions contained errors, but only a small minority were considered serious.
- Another study in Mexico observed that 58% of prescriptions contained errors, with dosage regimen accounting for most cases (27.6%).

Prescription Errors Prevalent in Four Units of a University Teaching Hospital in Nigeria

- Types and magnitude of prescription error
  - A total of 1866 prescriptions were reviewed and 1424 (76.3%) prescription errors were identified.
- The errors consisted of prescription error of
  - illegitimacy (No age and Date) - (52.2%),
  - Omission (no dose, or frequency) - (23.8%),
  - style (Illegal abbreviations and illegible writing) - (18.8%),
  - wrong dose (4.9%)
  - irrational use of drugs (0.8)

- The prevalence of these errors was highest in the wards (33.6%) followed by general outpatient (GOP) (24.6%), medical outpatient (MOP) (23.4%) while accident and emergency (A & E) had (18.4%).

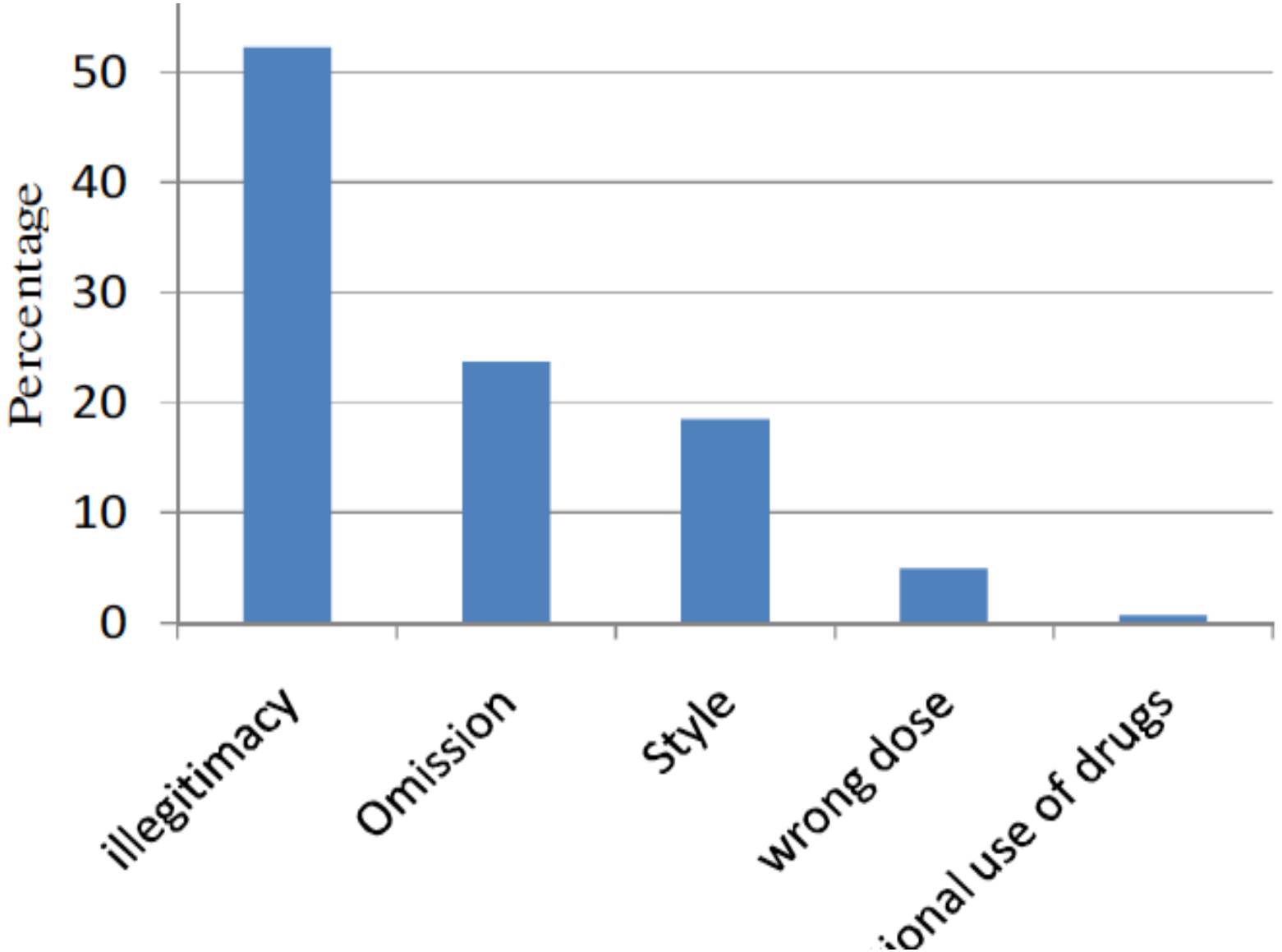

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Table 1. Frequency of prescription errors across departments.

Type of error	Frequency of errors across departments				
	Medical outpatient	General outpatient	Wards	Accident and emergency	Total
Illegitimacy	232 (31.2)	222 (29.9)	214 (28.8)	75 (10.1)	743
Omission	19 (5.6)	50 (14.8)	174 (51.6)	94 (27.9)	337
Style	68 (25.8)	58 (22.1)	58 (22.1)	79 (30.0)	263
Wrong dose	9 (12.9)	20 (28.6)	28 (40.0)	13 (18.5)	70
Irrational uses of drugs	5 (45.5)	0 (0.0)	4 (36.4)	2 (18.1)	11

Table 2. Details of error types across departments.

Types of error	Frequency across departments			
	Medical outpatient	General outpatient	Wards	Accident and emergency
Illegitimacy				
No age (n = 612)	30.4	31.2	26.8	11.6
No date (n =131)	35.1	23.6	38.2	3.1
Omission				
No dose frequency (n = 55)	9.1	20.0	0.0	70.9
No dose (n =100)	1.0	12.0	68.0	19.0
No dosage form n = 8)	25.0	25.0	50.0	0.0
No duration (n =162)	6.8	8.0	63.0	22.2
No strength (n =12)	0.0	100.0	0.0	0.0
Style				
Incorrect abbreviation (n = 244)	24.5	22.5	22.5	30.3
Illegible writing (n = 19)	42.1	15.8	15.8	26.3
Wrong dose				
Under dosage (n = 44)	4.5	27.3	47.7	20.5
Over dosage (n = 26)	27.0	30.7	27.0	15.3

Factors that influence Medication Errors

- Factor associated with healthcare professional
  - Inadequate drug knowledge and experience
  - Inadequate knowledge of patient
  - Inadequate perception of risk
  - Overworked or fatigued healthcare professional
  - Poor communication between healthcare professional and with patient
  - Physical and emotional health issues
  - Lack of therapeutic training
- Factors associated with patients
  - patient characteristics (e.g personality, literacy and language barriers
  - Complexity of clinical cases including multiple health conditions, polypharmacy and high risk medications

Classification of Medication Errors

- Based on sequence of medication use process
- Types of errors
- Knowledge based or Rule based error
- Action based error (“Slips”)
- Memory-based errors(“lapses”)

The Medication Use Process

- The **prescribing stage** (writing / ordering the prescription) includes assessing the need, selecting the correct drug and individualizing the therapeutic regimen to the patient.
- The **medication supply** stage (routing the prescription, keying the prescription into pharmacy dispensing and labeling system, picking, packing and dispensing the prescription) includes reviewing and processing the order, compounding/ preparation of the drug and dispensing the drug in a timely manner.

- The **administration** stage (administering the prescription) includes administering the right medication to the right patient, in the right manner and administering the medication only when indicated.
- The **monitoring** stage (counselling the patient about the prescription and monitoring treatment outcome) includes informing the patient about their medication and encouraging compliance, monitoring and documenting the patient's response to the medication, identifying and reporting adverse drug events and re-evaluating drug selection, regimen, frequency and duration.

How can *prescribing* go wrong?

- inadequate knowledge about drug indications and contraindications
- not considering individual patient factors such as allergies, pregnancy, co-morbidities, other medications
- wrong patient, wrong dose, wrong time, wrong drug, wrong route
- inadequate communication (written, verbal)
- documentation - illegible, incomplete, ambiguous
- mathematical error when calculating dosage
- incorrect data entry when using computerized prescribing e.g. duplication, omission, wrong number

How can medication supply (dispensing) go wrong?

- Look-Alike Packaging
- Sound alike Medications.
- Ambiguous nomenclature
- illegible writing

Your doctor prescribed this

Is that what you got?

NDC 0641-0410-21
Heparin
Sodium Inj., USP
10,000 USP units/mL
FROM PORCINE
INTESTINES
Rx only
NDC 0641-0272-21
HEP-LOCK U/P
PRESERVATIVE-FREE
Heparin Lock
Flush Solution, USP
10 USP units/mL
1 mL
Rx only


20 mg/2 ml
rosemida
Labesfal
0mg/2ml
ução injectável
Furosemida
I.M. ou I.V.
2 ml
10mg/2ml
Diazepam
Labesfal
Diazepam
Solução injectáv
I.M. - I.V.
2ml
LABESFAL

Look-a-like and sound-a-like medications

- Celebrex (an anti-inflammatory)
- Cerebryx (an anticonvulsant)
- Celexa (an antidepressant

How can drug *administration* go wrong?

- wrong patient
- wrong route
- wrong time
- wrong dose
- wrong drug
- omission, failure to administer
- inadequate documentation

How can *monitoring* go wrong?

- lack of monitoring for side-effects
- drug not ceased if not working or course complete
- drug ceased before course completed
- drug levels not measured, or not followed up on communication failures

Undesirable outcomes of medication Errors

- Adverse drug reactions
- drug-drug interactions
- Unpleasant outcome resulting from errors can result in a fear of medication.
- lack of efficacy
- Errors may result in a loss of trust in health care providers, making it even more difficult to convince patients of the relative benefits of medication.
- suboptimal patient adherence
- poor quality of life and patient experience

How do we Prevent Medication Errors

Performing a medication history:

- Always take a thorough medication history before prescribing
- Regularly review patients' medication lists, especially patients on multiple medications.
- Stop all unnecessary medications.
- Always consider medication as a possible cause of symptoms during the diagnostic process;
- Always ask about allergies before prescribing a medication.

Learn and practice drug calculations:

- Be familiar with how to manipulate units, adjust volumes, concentrations and doses.
- In high- stress and or high-risk situations consider ways to decrease the chance of a calculation error such as using a calculator, avoiding doing sums in your head (use pen and paper), asking a colleague to also perform the calculation and see if you concur

Prescribing and Documentation

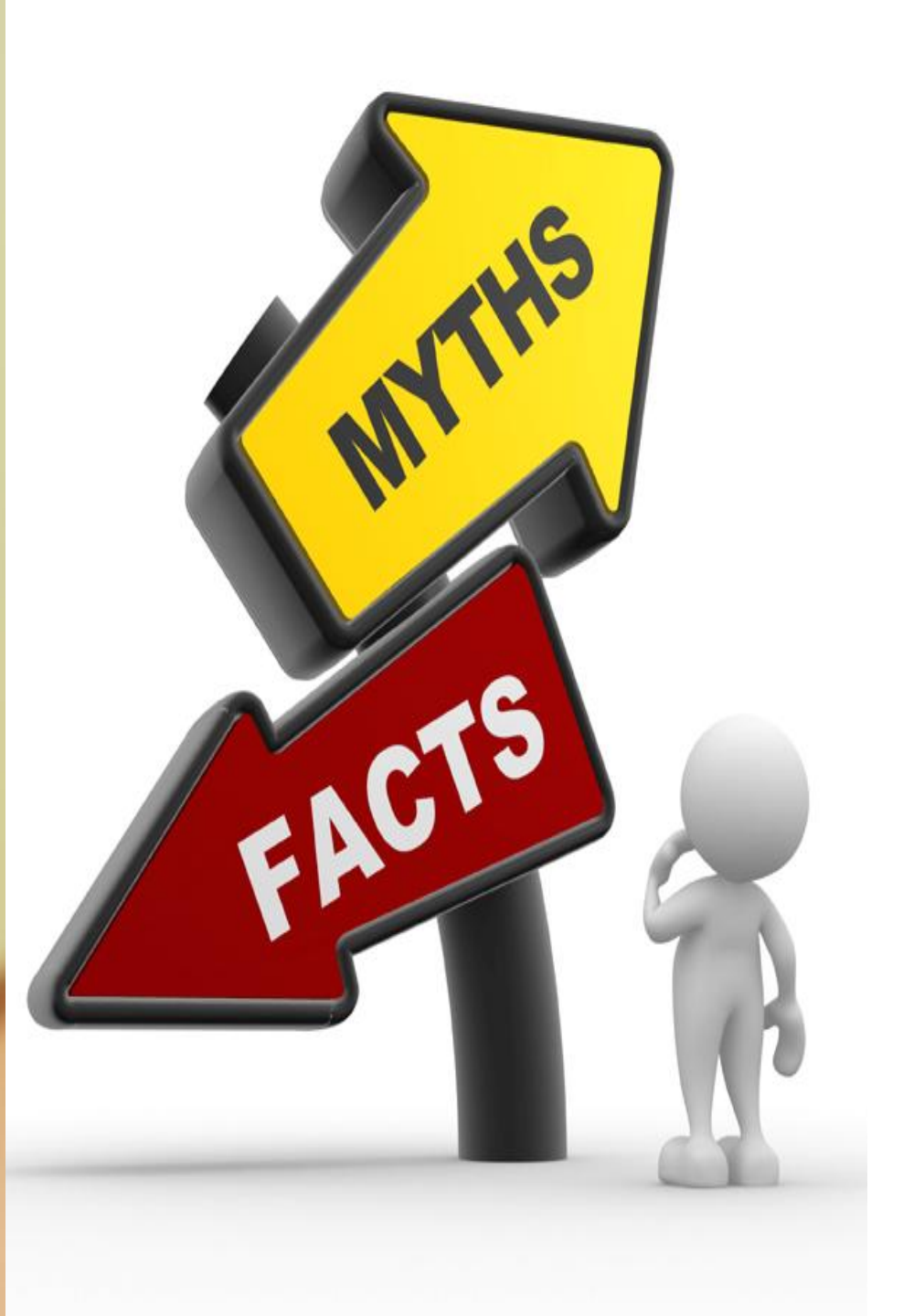
- Know the drugs you prescribe well,
- Tailor your treatment decisions to individual patients
- Avoid unnecessary use of medicines and consider risk benefit ratios;
- Documentation should be Clear, legible and unambiguous .
- Those who struggle to write neatly should print. Consider the use of electronic prescribing if available.
- Include patient, dose, drug, route, time and schedule as part of documentation;
- Always refer to prescribing references like BNF, EMDEX when not sure

Monitoring patients for side-effects:

- Be familiar with the side-effects of the medications you prescribe and be proactive in looking for them.
- Educate patients about potential side-effects, how to recognize them and appropriate actions should they occur.
- Always consider medication side-effects as part of the differential diagnosis when assessing patients with undifferentiated clinical problems

Encourage patients to be actively involved in their own care and the medication use process:

PROVIDING ADEQUATE INFORMATION FOR PATIENTS IS A GOOD MEDICATION ERROR PREVENTION STRATEGY.


MYTHS
FACTS

- Medication errors are less likely to occur if the consumer/patient has the information to actively participate in their detection.
- Physicians, Pharmacists and nurses need to take the time to teach patients information about their medication and medication use.
- An important last line of defense against errors is the patient's knowledge of his or her therapies.

- At a minimum, both inpatients and outpatients should know:
  - Drug names (generic and brand names)
  - What each drug is used for
  - What each drug looks like
  - How each drug should be taken
  - Side effects, including those to report immediately to a doctor
  - Important drug interactions (including interactions with over-the-counter medication and herbal products)
  - What to do if a dose is missed
  - Proper storage of medication

- The health care team must also communicate with one another to ensure consistency of the facts being delivered.
- The same factual details coming from a variety of sources - from health care professionals and family - reinforces learning and understanding

- Patients should be encouraged to question a medication they feel is being administered or dispensed in error
- The medication should not be given until the nurse or pharmacist is able to verify that the drug, dose, route, etc. is correct.
- This may involve contacting the doctor or double-checking with another staff member.

Remember the 5 Rs when prescribing and administering

- Right drug
- Right dose
- Right route
- Right time
- Right patient
- Right Documentation

Report and learn from medication errors

- Whenever an adverse drug event or near miss occurs there is an opportunity for learning and improving care.
- Be on the look out for errors and encourage the rest of the team to be vigilant of their own and others actions.
- Medication error should be reported and be seen as a learning opportunity

Example case

- a 74-year-old man sees a community doctor for treatment of new onset stable angina
- the doctor has not met this patient before and takes a full past history and medication history
- he discovers the patient has been healthy and only takes medication for headaches
- the patient cannot recall the name of the headache medication
- the doctor assumes it is an analgesic that the patient takes whenever he develops a headache

Example case

- but the medication is actually a beta-blocker that he takes every day for migraine; this medication was prescribed by a different doctor
- the doctor commences the patient on aspirin and another beta-blocker for the angina
- after commencing the new medication, the patient develops bradycardia and postural hypotension
- unfortunately the patient has a fall three days later due to dizziness on standing; he fractures his hip in the fall

What factors contributed to this medication error?

- two drugs of the same class prescribed unknowingly with potentiation of side-effects
- patient not well informed about his medications
- patient did not bring medication list with him when consulting the doctor
- doctor did not do a thorough enough medication history
- two doctors prescribing for one patient
- patient may not have been warned of potential side-effects and of what to do if side-effects occur

How could this situation have been prevented?

- patient education regarding:
  - regular medication
  - potential side-effects
  - the importance of being actively involved in their own care - e.g. having a medication list
- more thorough medication history

Case

- a 38-year-old woman comes to the hospital with 20 minutes of itchy red rash and facial swelling; she has a history of serious allergic reactions
- a nurse draws up 10 mls of 1:10,000 adrenaline (epinephrine) into a 10 ml syringe and leaves it at the bedside ready to use (1 mg in total) just in case the doctor requests it
- meanwhile the doctor inserts an intravenous cannula
- the doctor sees the 10 ml syringe of clear fluid that the nurse has drawn up and assumes it is normal saline

Case

- there is no communication between the doctor and the nurse at this time
- the doctor gives all 10 mls of adrenaline (epinephrine) through the intravenous cannula thinking he is using saline to flush the line.
- the patient suddenly feels terrible, anxious, becomes tachycardic and then becomes unconscious with no pulse
- she is discovered to be in ventricular tachycardia, is resuscitated and fortunately makes a good recovery
- recommended dose of adrenaline (epinephrine) in anaphylaxis is 0.3 - 0.5 mg IM, this patient received 1mg IV

Can you identify the contributing factors to this error?

- assumptions
- lack of communication
- inadequate labeling of syringe
- giving a substance without checking and double-checking what it is
- lack of care with a potent medication

How could this error have been prevented?

- never give a medication unless you are sure you know what it is; be suspicious of unlabeled syringes
- never use an unlabeled syringe unless you have drawn the medication up yourself
- label all syringes
- communication - nurse and doctor to keep each other informed of what they are doing
  - e.g. nurse: "I' m drawing up some adrenaline"
- develop checking habits before administering every medication … go through the 5 Rs
  - e.g doctor: " What is in this syringe?"

Example case

- A patient, in the course of treatment in a hospital, was given parenteral morphine. The patient was sensitive to the drug and developed respiratory depression. The patient's doctor called in an order for an ampoule of naloxone to be administered.
- A dose was prepared from ward stock and given but there was no response.
- A repeat order for a second ampoule of naloxone was also given and again the patient showed no improvement.

Example case

- The nurse then questioned the doctor; “How much of this **Lanoxin** do you want me to give?”
- Instead of **NaLoxone**, the nurse heard **LaNoxin**.
- The patient subsequently died.
- Contributing to the error, the nurse had not repeated back the verbal order to the doctor, and the doctor had prescribed an ampoule of the drug rather than a metric weight dose.
- The nurse had accepted the incomplete order and administered an ampoule of LANOXIN® (digoxin) both times.

KEEP

CALM

ITS MY

LAST

SLIDE

THANK YOU FOR YOUR ATTENTION

QUESTIONS AND COMMENTS