Current Regulatory Requirements for Conducting Clinical Trials in India for IND/New Drug Version 2.0

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Lecture – 07
BA/BE Study & Study Centers: Legal Provisions

Good morning, friends, to the course current regulatory requirement for conducting clinical trials in India for investigational new drug and the new drug version 2. Up to this we have seen 6 lecture regarding this and this is the 7th lecture which is related to the BA – BE Study and Study Centers and its Legal Provisions.

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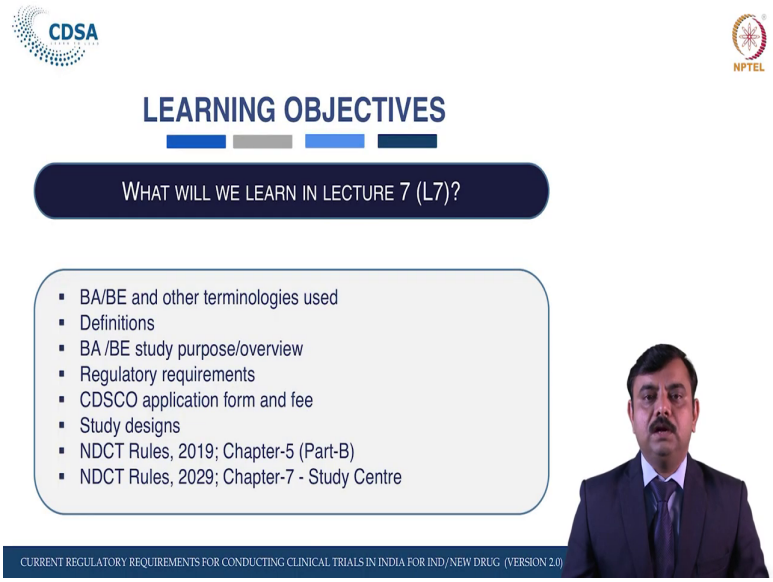

After completion of this lecture, the learners will come to know what is BA BE and other terminology used in the BA BE study. Then what is the purpose of BA BE study for

conducting it, what are the regulatory requirement, which are the forms and fees that is CDSCO procedure to apply for the BA BE study and study center. Then, the learners will come to know what is a chapter 5 given in the new drug and clinical trial, what is the chapter 7 and the guidelines to be used for the BA BE study and BA BE study centers.

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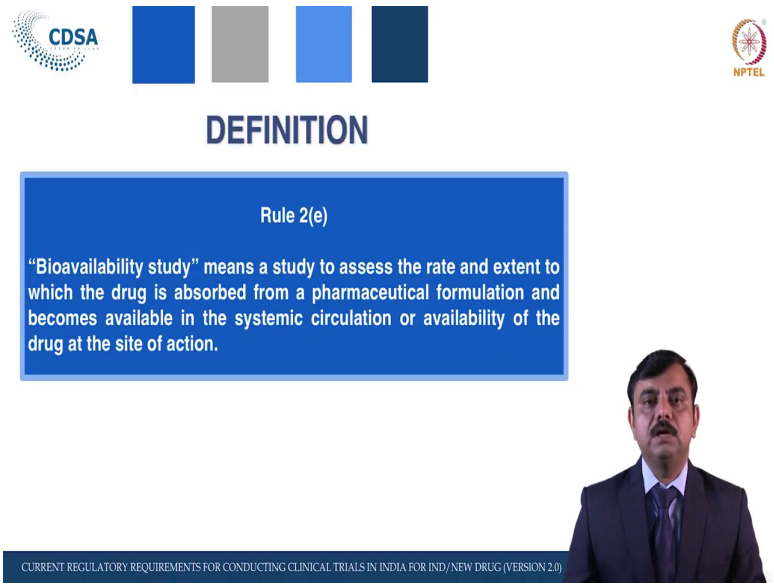

So, friends first of all we will see what are the definitions given in the new drug and clinical trial. As you know that previously there were no definition in the schedule wise and in the drug and cosmetic Rule 1945 with the amendment of the drug and cosmetic Rule 1945 that is for the new drug and clinic trials many of the definition has been given in the rule. So, we will see this definitions given in the rule one by one.

Let us see first what is means by bioavailability study. So, the definition of a bioavailability is given in the Rule 2 e and the bioavailability study means a study to access the rate and extent

to which the drug is absorbed from a pharmaceutical formulation and becomes available in the systemic circulation or availability of the drug at the site of action.

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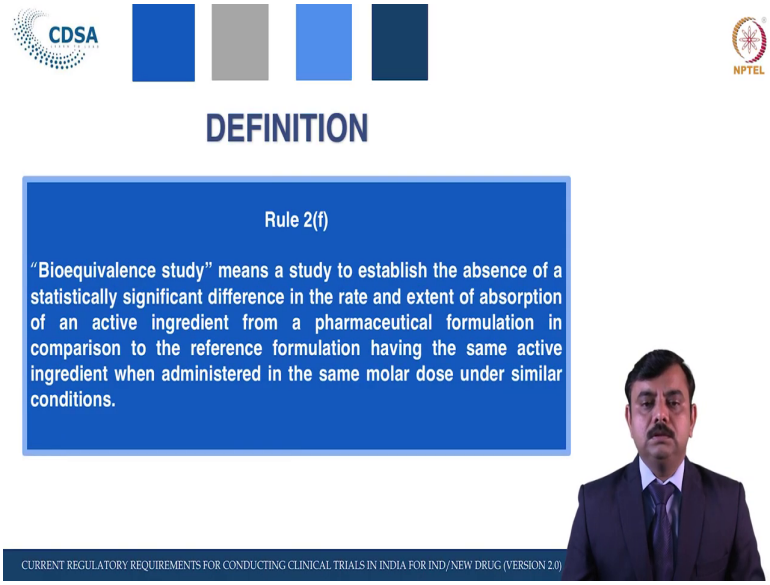

The next definition is related to the bioequivalence study. The definition of this bioequivalence study has been given in Rule 2 f and it means a study to establish the absence of statistically significant differences in the rate and extent of absorption that is a bioavailability we have seen of an active ingredient from a pharmaceutical formulation in comparison to the reference formulation having the same active ingredient when administered in the same molar dose under similar condition.

It means as the bioavailability of the two different dosage form having the same active ingredient should be bioavailable or the bioavailability should be same, then we can say the

bioequivalence has been achieved for the two different dosage from with the same active ingredient.

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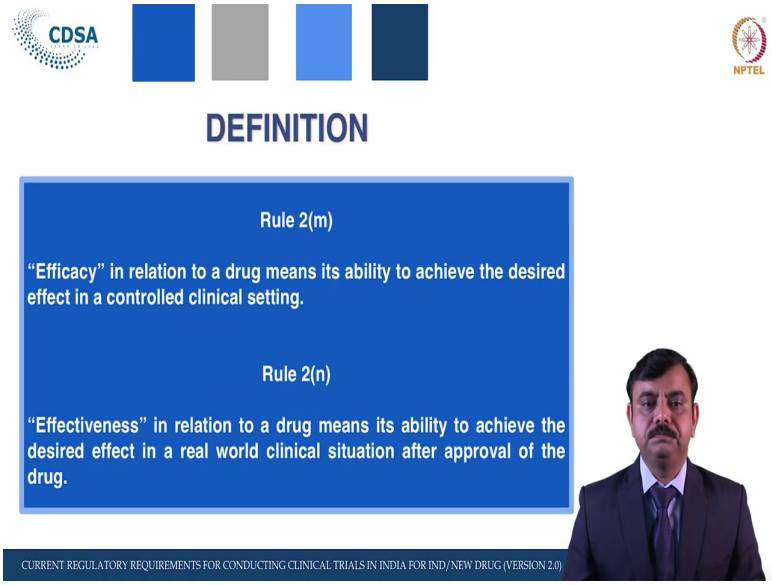

Coming to the next definition that is the efficacy, we have seen we are all always using the words efficacy, effectiveness, investigational products. So, the different books different guidelines have given the different definition that is why to bring it into the regulation these definition has been defined in the New Drug and Clinical Trial Rule 2019. So, let us see what is means by efficacy, what is means by effectiveness.

The definition of efficacy has been given in the Rule 2 m of New Drug and Clinical Trial Rule. It is in relation to a drug means it is ability to achieve the desired effect in control clinical setting. So, the ability of the drug to achieve the desired effect is the efficacy. The next is

effectiveness the definition has been given in Rule 2 n and it is in relation to a drug means its ability to achieve the desired effect in a real world clinical situation after approval of the drug.

So, you have seen that there is a difference little bit difference between efficacy and effectiveness. In case of the efficacy it is given in a controlled clinical situation means in means in clinical trial or the BA BE study; and, effectiveness it is given in the real world means after the approval of the drug and once the drug is in the market.

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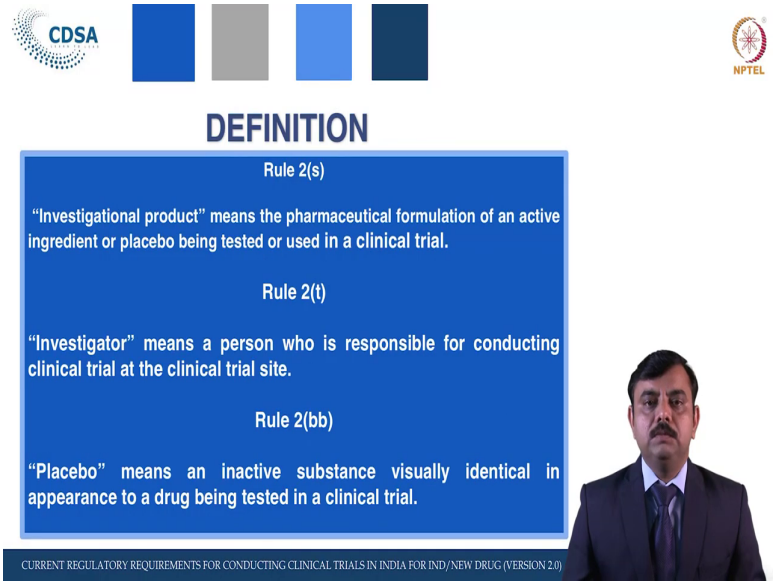

Coming to the next definition it is the IP usually we called it is a investigational product the definition of which is given in the Rule 2 s. Investigational product means the pharmaceutical formulation of an active ingredient or placebo being tested or used in the clinical trial means whatever the drug we are using in clinical trial or in the BA BE study including the placebo. So, these are called as the investigational product.

Now, what is means by investigator principle investigator? So, the definition of investigator is given in Rule 2 t and it means a person who is responsible for conducting clinical trial at the clinical trial site. We know that the investigator and principle investigators are there and the investigator who is the person which is actually responsible for the conducting of the clinical trial at the trial site and he is also responsible for the taking care of the patient.

The next is of placebo. It is given in Rule 2 bb placebo means an inactive substance visually identical in appearance to a drug being tested in a clinical trial. It means it is not having any pharmacological activity it is inactive substance, but it is identical in appearance, so that the if there is a study which is a blinded study the patients are investigator they should not be able to identify which is the drug or which is the placebo that is why it is a identical in appearance to the drug.

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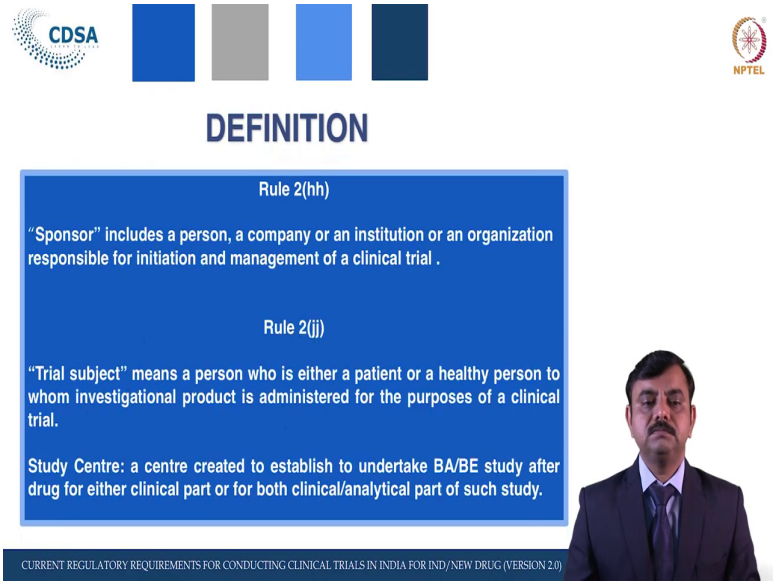

Rule 2 hh is for the definition of sponsor. Sponsor includes a person or a company or an institution or any organization responsible for initiation and management of a clinical trial. So, the any organization institution who is willing to conduct or sponsor the clinical trial is called the sponsor. The next is a trial subject given in the Rule 2 jj of New Drug and Clinical Trial it means a person who is either a patient or a healthy person.

So, here both has been given patient and a healthy because we have seen in a phase 3 and when there is a drug of special criteria that is carcinogenic drug or having the carcinogenicity in that case we uses the patient also to whom investigational product it means the drug which is under trial is administered for the purpose of a clinical trial. It means the subject or patient those who are enrolled for this purpose are called the trial subject.

Study center it is a center created to establish or undertake BA BE study after drug for either clinical part or for both that is clinical analytical part of such study is called study center.

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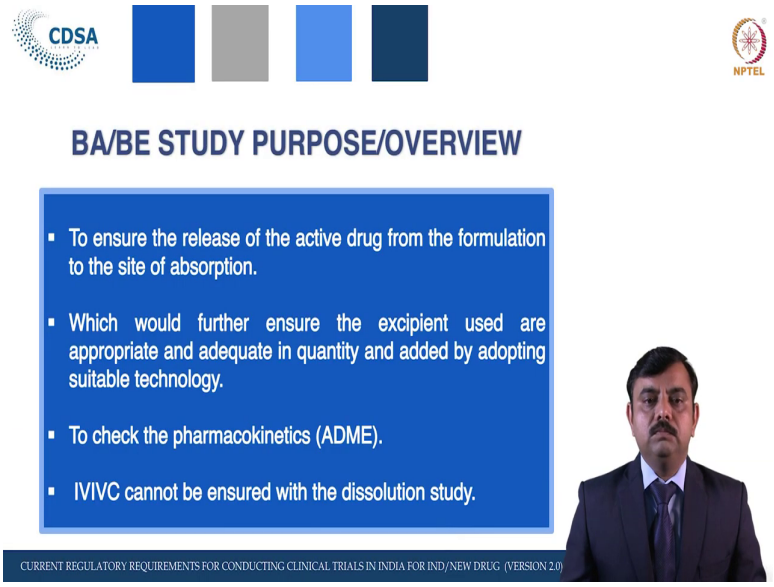

Now, let us move towards the purpose of the BA BE study what is the purpose of a bioavailability and bioequivalence study and why we conduct it. Bioavailability and bioequivalence study is conducted to ensure the release of the active drug from the formulation to the site of the absorption because the different formulation making manufacturer they are using the different excipients and therefore, it is necessary to ensure the release of the active drug from the formulation to the site of absorption.

Because once it is the drug at the site of absorption then only it will get absorbed and it will be available in the blood circulation. And, once it is available in the blood circulation then only it can illicit its desired effect that is why the bioavailability and bioequivalence study is required.

This study which would further ensure the excipient used are appropriate and adequate in quantity and added by adopting suitable technology. So, the concentration of the excipient use

such as binder, ligand and these diluents so, they should allow the drug to release at a in a proper time and at a proper concentration to the site of absorption and the technology such as granulation, binding, tableting this technology is used that should be capable of allowing this release of the active ingredient.

Further BA BE studies are used to check the pharmacokinetics in the subject that is the absorption, distribution, metabolism and elimination of the drug. Many of the times the in vitro in vivo correlation cannot be ensured with the dissolution study as we know that dissolution study is also used to ensure the release of the drug, but that is a in vitro study and many of the time the in vitro correlation cannot be established directly in vivo and that is not appropriate that is why we require this study in the subjects.

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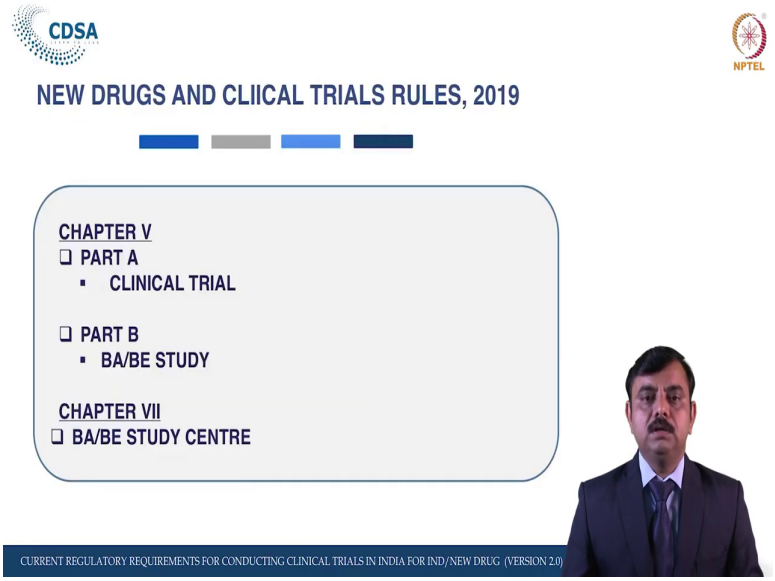

Let us move to the New Drug and Clinical Trial Rule and in which chapter it has been given. So, this is the New Drug and Clinical Trial Rule, 2019 in chapter V; actually this chapter V is divided in two parts – the part A is related to the clinical trial and part B is related to the bioavailability and bioequivalence study. Chapter VII is dealing with the BA BE study centers.

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Now, we will see whether the permission is required to conduct such a BA BE study or not and if the permission is required whether the protocol which is designed for this study required to get approval before initiation or not or what is the role of ethics committee in BA BE study. So, we will see it in our next slides which is related to the permission protocol approval.

So, as per the Rule 31, no BA BE study of new drug or investigational new drug shall be conducted in human subject by any person or institution or any organization except in accordance with the provision of the act means the drug and cosmetic act and these rules that

is the new drug and cosmetic rules and without permission granted by the central; central means the central licensing authority.

So, we will see now whether the permission is required to conduct the bioavailability bioequivalence study whether the protocol which is designed for the study require approval or not, what is the role of the ethics committee, whether the ethics committee is responsible for giving the approval or not that we will see.

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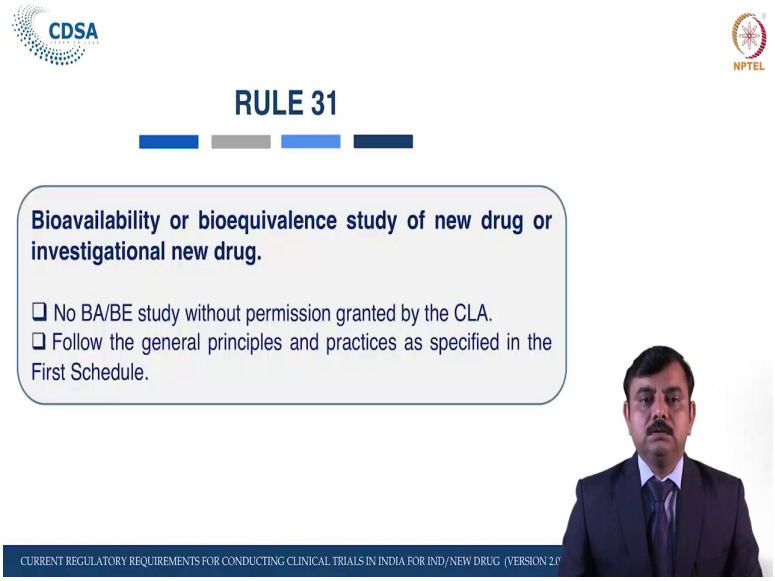

So, as per the Rule 37 of New Drug and Clinical Trial no BA BE study of any new drug or investigational new drug shall be conducted in human subject by any person, institution or organization except in accordance with the provision of the act and these rules; act means the drug and cosmetic act rule means rules there under 1945 and also the rules New Drug and Clinical Trial 2019 and without permission granted by the central licensing authority.

The central licensing authority we know that it is the CDSCO Central Drug Standard Control Organization. So, as per these rule no one should conduct the bioavailability and bioequivalence of the new drug. Here it is important to see it is mentioned that or the investigational new drug. So, whenever there is a investigational new drug and the new drug the permission to conduct the bioavailability and bioavailability and bioequivalence study is required from the central licensing authority.

Every person associated with the conduct of BA BE study of new drug or investigational new drug shall follow the general principle and practices as specified in the first schedule. So, in the first schedule of this new drug and clinical trial room the general principle has been given and every person or organization those who are willing to conduct the study they have to follow this general principles.

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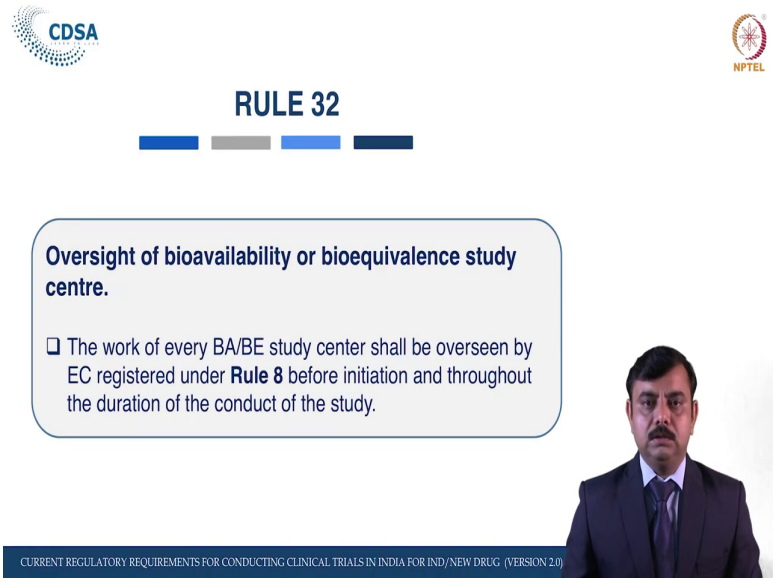

Let us see what is the oversight of BA BE study who has to monitor and who has to audit these sites. The work of every BA BE study shall be over seen by the ethics committee. We have seen what is ethics committee and those ethics committee which are registered under Rule 8 means those which are registered with the CDSCO those ethics committee can only oversee the work. So, when to be overseen? That before initiation and through the duration of the conduct of such study. Let us see what is the application forms and the procedure.

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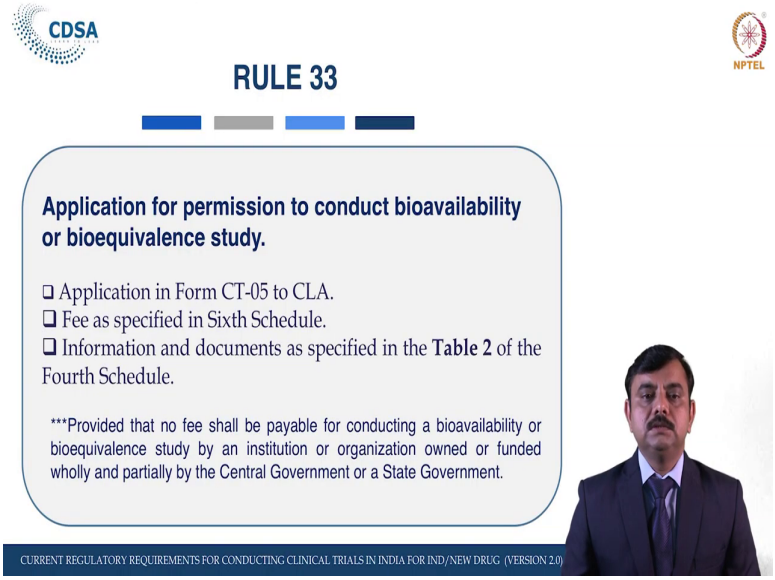

So, the application forms and the procedure given in Rule 33 which is related to the application for permission to conduct bioavailability and bioequivalence study. The applicant has to apply in form CT-05 to the central licensing authority that is to the central drug standard control organization. The fees we have seen in our earlier lecture that fees are given in the sixth schedule of this NDCT.

So, appropriate fees to be paid through the Bharat Kosh or through the Bank of Baroda, and the receipt of that challan has to be uploaded. The information and document as specified in the Table 2 of the fourth schedule. So, these are three basic requirement the CT form 05, the fees as per sixth schedule and the document as mentioned in the table 2, we will see that in the lateral slides what are the document required.

So, there is one provision that provided that no fees shall be payable for conducting a BA BE study of an institution or organization owned or funded fully or partly by the central government or state government. So, central government or state government agencies those which are willing to conduct this study for them there is a no fee.

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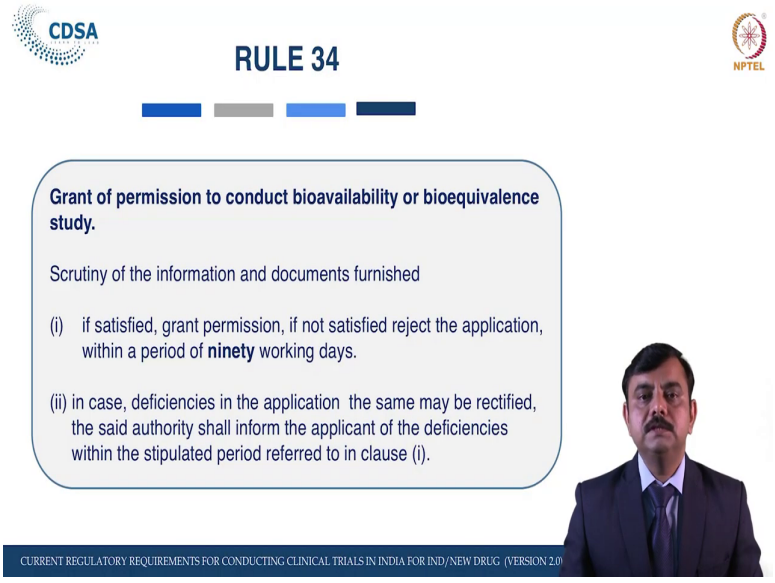

Now, let us move towards the grant of permission and which are the form in which the applicant will obtain the permission to conduct the BA BE study. So, it is as per the Rule 34.

The central licensing authority once it has received the application it will scrutinize the information and document furnished with the application as I have mentioned in form CT 05 and if there is query and such further enquiry if any as may be considered necessary.

Or if it is satisfied that the requirement of these rules have been complied with grant permission to conduct bioavailability bioequivalence study for the new drug or the investigational new drug in form CT 7. So, the CT form the application and the permission in these forms. In case if the licensing authority is not satisfied he can reject the application, but in that rejection the reason which they have given for the rejection that has to be conveyed to the applicant in writing.

And, these application for the approval or for the rejection that has to be conveyed to the applicant within a 90 working days from the date of received of the application in form CT 5. In case where the central licensing authority considered that there are some deficiencies or the document that have not been completely submitted to the central licensing authority, the licensing authority can give the opportunity to rectify the same and the said authority shall in form the application applicant the deficiencies within a stipulated period refer to clause 1, that is the 90 working days.

So, there should be a communication from the central licensing authority within a 90 working days. And, if satisfy after submission of the document the central licensing authority may except the application or if not satisfied then they can reject the application.

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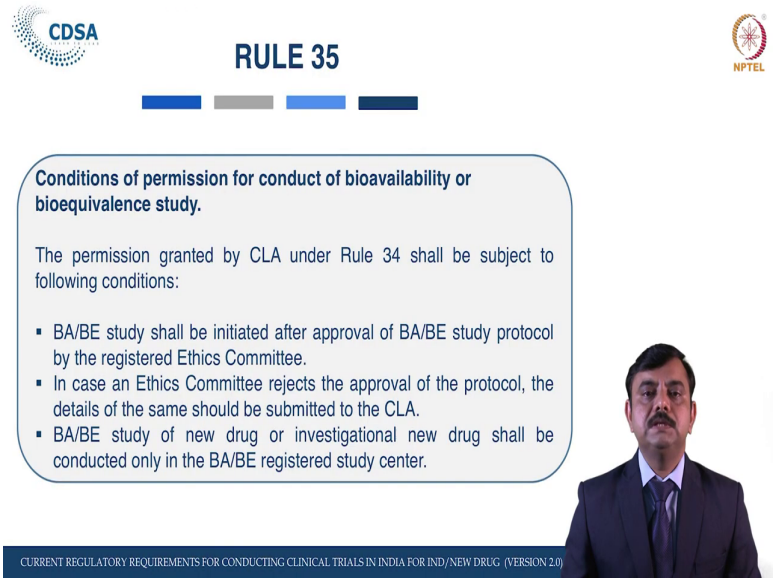

So, once this permission is granted the permission is given by stipulating certain condition to be followed by the applicant and these conditions have been mentioned in the Rule 35 of the New Drug and Clinical Trial a Rule 2019. Let us see which are these conditions.

In this conditions the BA BE studies shall be initiated after approval of BA BE study protocol by ethics committee; we know that registration is required for ethics committee. So, after registration of ethics committee the applicant shall initiate the approval of BA BE study only after the approval from the ethics committee. In case of an ethics committee of BA BE study center reject the approval of the protocol, the details of the same should be submitted to the CLA.

Sometimes the applicant takes the ethics committee approval after the getting approval from the central licensing authority. In many of the cases they first take the approval from the ethics

committee and submit to the central licensing authority, then central licensing authority approves that protocol if all the conditions have been satisfied.

In case where there is no ethics committee approval has been submitted to the licensing authority, licensing authority with the condition that they have to take a necessary approval can grant the permission. So, in such cases when after receiving these permission and as soon as they take the approval from the ethics committee that is required to be submitted to the central licensing authority.

Then BA BE study of new drug or this IND shall be conducted only in BA BE study center registered with the central licensing authority under Rule 47. So, we will see what is the procedure for the BA BE study center in our next slides. So, the this BA BE study protocol once approved that should be conducted in the center where that center has been registered.

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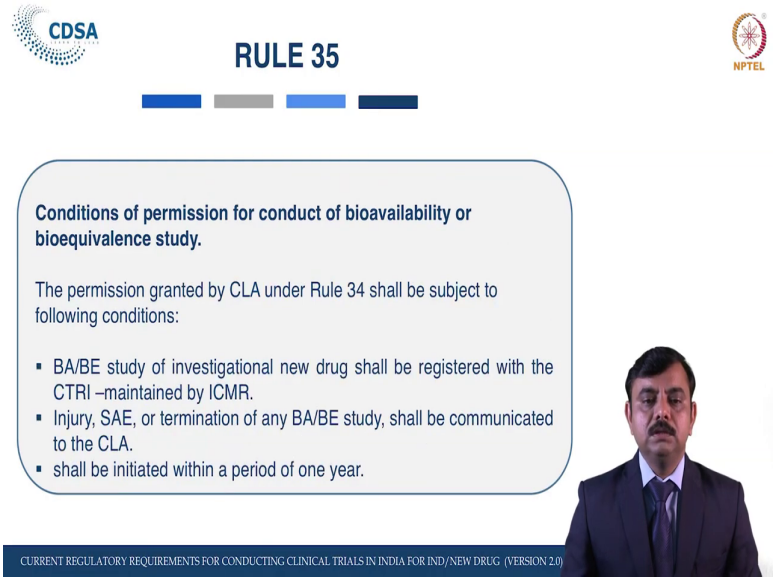

The BA BE study of this IND shall be registered with the CTRI maintained by the ICMR. So, here it is mentioned study of investigational new drug. So, whenever there is a investigational new drug that study should be registered with the clinical trial registry of India, the register which is online and maintained by the ICMR.

In case of injury or serious adverse event or any termination of any study, that should be communicated to the central licensing authority. The study shall be initiated by enrolling the first subject within period of 1 year. So, earlier this conditions was not there, now with the giving the validity period it has been stipulated that the study has to start with in a period of 1 year from the date of grant of permission. Failing which prior permission from central licensing shall be required. Let us see what is the validity period and its inspection.

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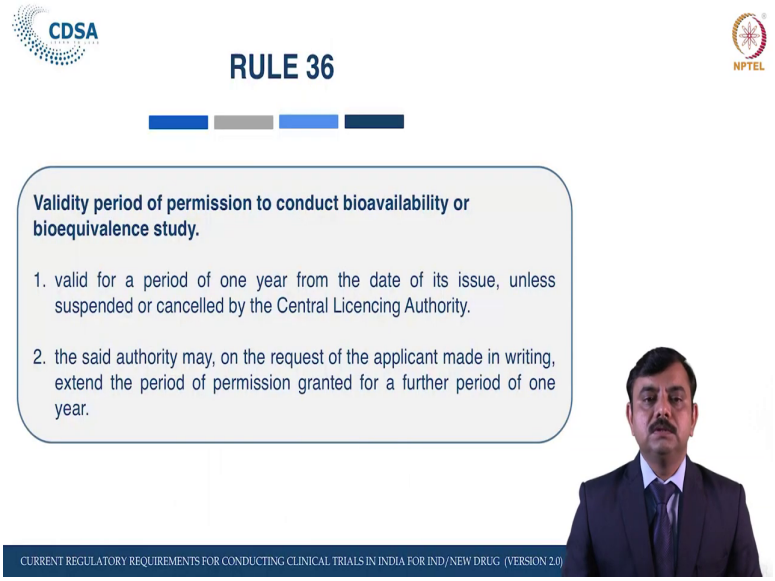

So, the validity period of the permission granted is a 1 year this is the validity period for the BA BE study approval. So, once the BA BE study approval has been granted it would be valid for 1 year and in case if it has not been started within 1 year it has to be informed to the central licensing authority.

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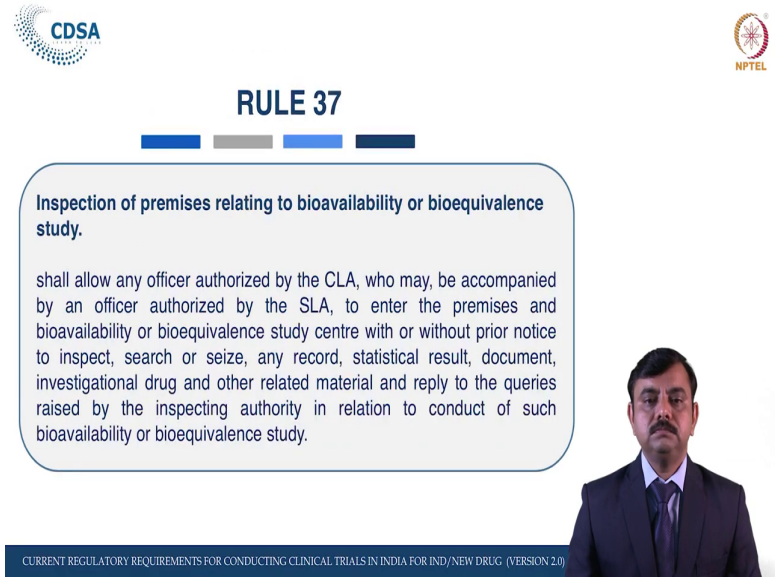

The inspection of premises relating to the BA BE study, the person or the institution or any organization permitted to conduct such type of study under Rule 34 we have seen in CT 7 including his representative and investigator. They shall allow any officer authorized by the central licensing authority who may if consider necessary be accompanied by officer authorized by the state licensing authority. So, central licensing authority along with the state licensing authority they can come for the audit of the BA BE study center.

So, in this case those who have obtained the permission they should allow this inspector to they can come with a notice, prior notice or without notice in both of the case they should be allowed and they can seize any record or statistical result document of related to the investigational drug and any other related material and reply to the queries raised by the inspecting authority in relation to conduct of such BA BE study.

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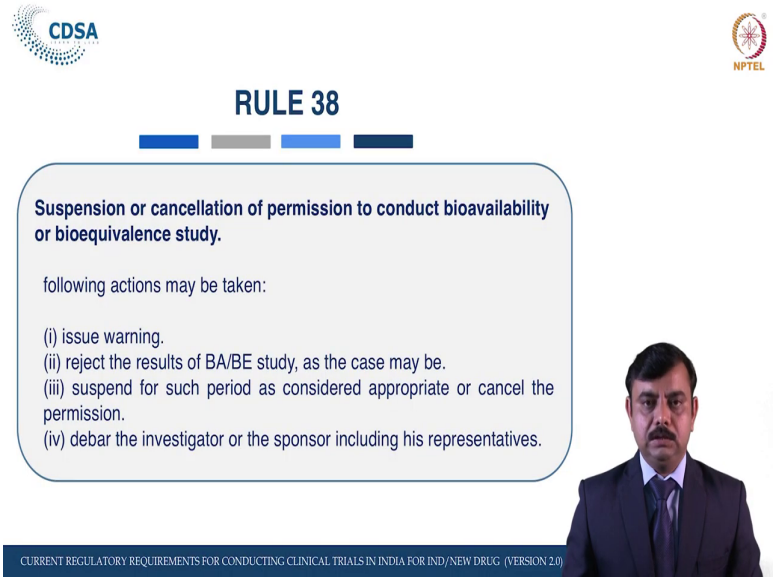

So, after the inspection and audit there is a there may be a suspension or cancellation of the study or the registration of the study center. So, the suspension and cancelation related it is given under the Rule 38 as we have seen after permission there may be a inspection or audit.

So, central licensing authority may after giving an opportunity to show cause if the auditor those who have found the there is a violation of the condition of the permission or there is a violation of the protocol which is approved by the central licensing authority or ethics

committee and if it is communicated to the central licensing authority, then central licensing authority may after giving opportunity to show cause that why this deficiencies are there and after affording an opportunity of being heard by an order in writing take one or more of the this following actions.

So, the central licensing authority after receiving such audit report or once it knows that there is some violation. So, they can issue the show cause notice to the applicant and once the reply has been received if it is a not satisfactory then the central licensing authority can issue a warning in writing, but there in they have to described the deficiency or defect observed during the inspection or otherwise which may affect adversely the right or wellbeing of subject enrolling the study or the validity of BA BE study conducted.

The central licensing authority can reject the result of the BA BE study as the case may be if the results have not been found satisfactory or if it is found that there is a violation or there is no data integrity then the result of that study can also be rejected. The central licensing authority can suspend such a study or study center for such a period as considered appropriate or cancel the permission granted. Study center can also be suspended or the permission can also be suspended.

They can debar the investigator or the sponsor including his representative to conduct any BA BE study in future. So, once it has been found that there is a gross violation they can also debar the investigator for conducting further studies. So, this is all about the BA BE study approval and the protocol, now we will switch to the BA BE study center.

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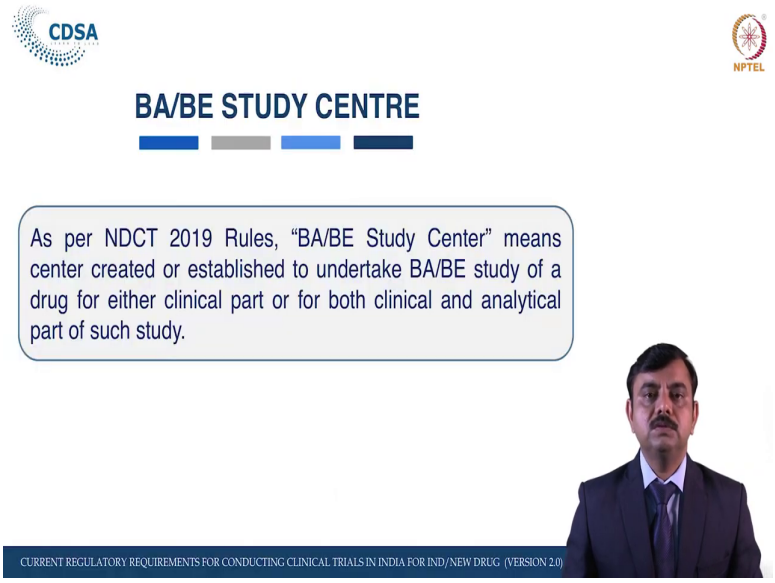

Let us see what is the BA BE center as per the rule. So, as per the New Drug and Clinical Trial Rule 2019, BA BE study center means a center created or established to undertake BA BE study bioavailability bioequivalence study of a drug for either clinical part or for both, clinical and analytical part of such study. So, whether it is a part of clinical trial BA BE study with the subject or whether it is a analytical part of such study both are covered under the BA BE study centers.

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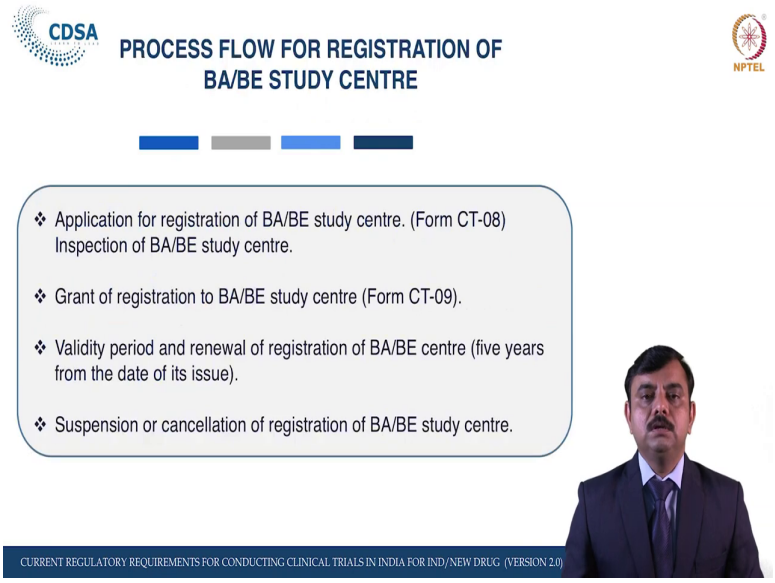

Let us see the in brief what is the process of approving the BA BE study center. So, once there is a application with the central licensing authority the applicant has to apply in CT 8. Once there is application for registration of the BA BE study center the central licensing authority may inspect that registration center BA BE study center and grant of registration to BA BE study center in form CT 9.

So, once there is a application then there is a inspection and if from satisfactory in all respect then the licensing authority can grant in CT 9. The validity period and renewal of registration of BA BE center is a 5 year from the date of its issue. Once it is approved, it is a valid till 5 year and if the licensing authority found there is a violation not complying with the conditions stipulated they can suspend or cancel the registration. Let us see these one by one in more detail.

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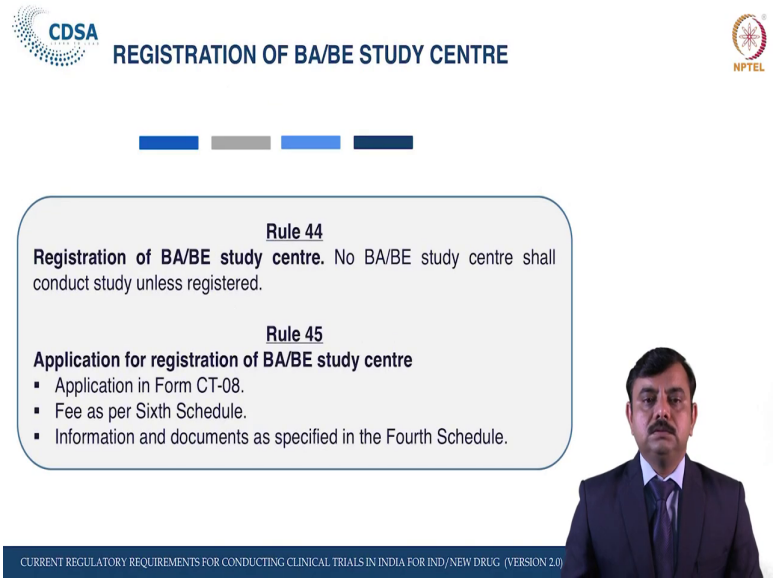

So, the registration of BA BE study center why it is required because it is given under Rule 44 of the new drug and clinical trial that no BA BE study center shall conduct bioavailability or bioequivalence study of new drug unless they are having permission from the central licensing authority. So, as it is stipulated it into the Rule the BA BE study center those who are approved they can only conduct the study.

The application for registration of BA BE study center the applicant has to be apply in CT 8 and the application for registration of BA BE steady center with the CLA shall be made to the said authority in form CT 8 as we have seen. The application under sub Rule 1 shall be accompanied by fees all they are given in the sixth schedule and the other information we will see in the in our next slide which are the document required as per the schedule.

Then after the application the inspection can happen on receipt of an application under Rule 45 any officer authorized by central licensing authority that may be accompanied with the state licensing authorities and they may cause an inspection of such steady center to verify the facility of the center with center and the capacity of the applicant to comply with the requirement whether they are having all the equipments required for the BA BE study center, whether there is a enough space to conduct such study or not, whether the competent people are available or not that can be inspected.

After the inspection and after the scrutiny of the information and document furnished by the applicant in form CT 8 and after having such inspection and further enquiry the if the licensing authorities satisfied that the study center is as per the rules and regulation then they can grant the registration. If not satisfied they can reject the application, the reason they have to be recorded in writing to the applicant.

In case where the central licensing authority consider that there are some deficiency they can communicate these deficiencies to the applicant and after satisfied reply again they can issue the registration and if not satisfied then they can reject this.

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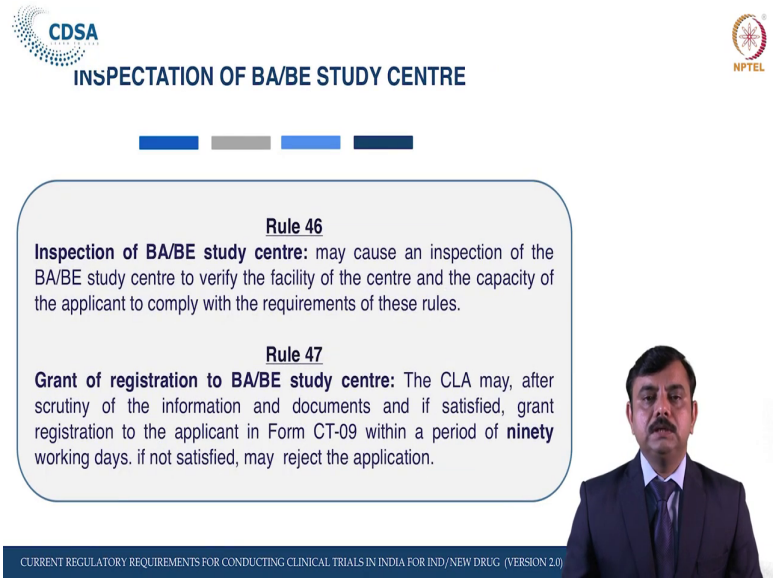

So, after the rejection if the applicant is not satisfied with the order passed by the government that applicant who is agreed by the decision of the central licensing authority he may file an appeal within a 45 days from the date of receipt of such rejection before a central government. And, that government may after such enquiry once he has filed the application for the grievance the government may after such enquiry and after giving opportunity of being heard to the appeal and disposed off the appeal within a period of 60 days.

So, once the grievance has been filed within 45 days of the receipt of such a rejection within a 60 days the government after giving a opportunity to be being heard and if found satisfied may grant the permission or if it is not satisfied can continue the rejection.

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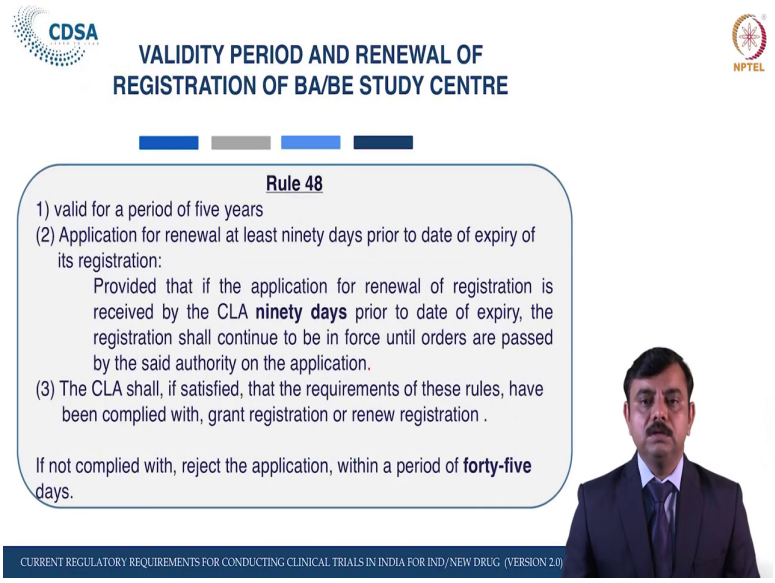

Now, let us see what is the validity period and the renewal of registration. The registration granted under Rule 47 in form CT 9 shall remain valid for period of 5 years from the date of its issue unless suspended cancelled by the central licensing act. Once it is granted it would be valid for period of 5 years unless if there is a violation of the rules stipulated and if there is a inspection and during that inspection it is found it is not consistently complained with the rules and regulation then it can be suspended or cancelled.

The BA BE center shall make an application for renewal of registration in form CT 08. So, for the renewal again it has to be applied in CT 08 along with the document as specified in the fourth schedule at least ninety days prior to date of expiry of its registration. So, once it is granted we have seen it is a valid for period of 5 years. So, before the expiry of this

registration certificate before 90 days the applicant has to be apply for the renewal of this registration.

Provided that if the application for renewal of registration is received by the licensing authority ninety days prior to date of expiry the registration shall continue to be in force until order are passed by the said authority. Once he has applied before 90 working days and if there is a no communication or if there is a delay from the licensing authority, then in that case the license which is already with the applicant that is considered deemed to be valid till the order are passed by the said authority on the application.

The central licensing authority after scrutiny of information enclosed with the application and after taking into account inspection report and the information required if he has found that the requirement have been complied with the grant of registration, then he can renew registration in form CT 9. So, we have seen the BA BE study approval and its condition of the permission same here is also there are some stipulated conditions with the registration certificate.

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The center this conditions are the center shall maintain the facilities and adequately qualified and train personnel as specified in the fourth schedule for permission it is a function. The staff should be qualified, the facility should be adequate to perform such study.

The center shall initiate any BA BE study of new drug or IND in human subject after approval of the protocol another related by document by ethics committee for clinical trial and permission of such study granted by the central licensing study. So, then this has been checked, but again it has been stipulated that the BA BE study center that is a form should not start any BA BE studies BA BE study prior to prior to approval of the central licensing authority or the ethics committee.

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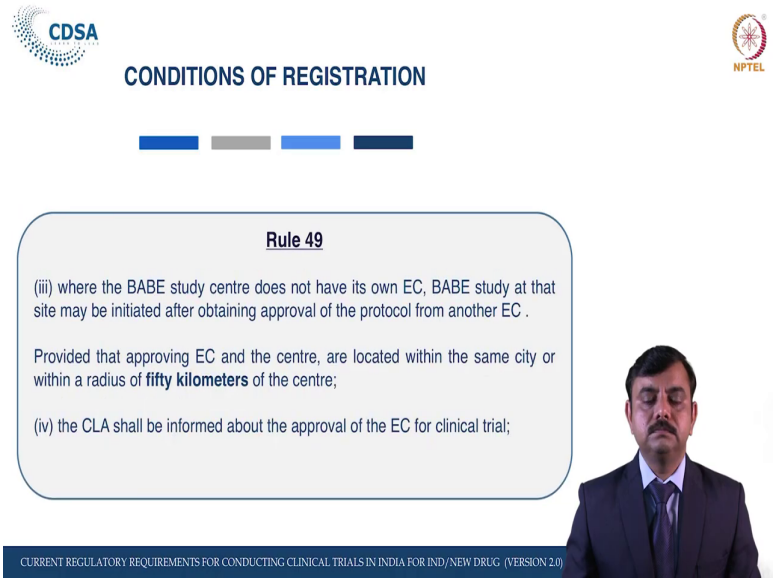

Where this center does not have its ethics committee that site may be initiated after obtaining approval of the protocol from ethics committee for clinical trial registry register under Rule 8, provided that the approving ethics committee accept the responsibility for the study at the center and both the approving ethics committee and center are located within same city or within radius of fifty kilometer of the center.

So, the ethics committee which is looking after the this centers and the BA BE protocol this should be within the radius of fifty kilometers. The CLA shall be informed about the approval of the ethics committee for clinical trial if the ethics committee approval has been taken after the approval has been granted by the central licensing authority that should be communicated to the central licensing authority.

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Then next is BA BE study of IND shall be registered with the CTRI as we have mentioned that if the study with the IND it has to be registered with the CTRI before enrolling the first subject. Study shall be conducted in accordance with the approval protocol; whatever the protocol which is approved by the central licensing authority and ethics committee that should the study should be conducted as per the approval protocol and this study also should be conducted as per the good clinical practices, guide line which are which is mentioned in the act and rule.

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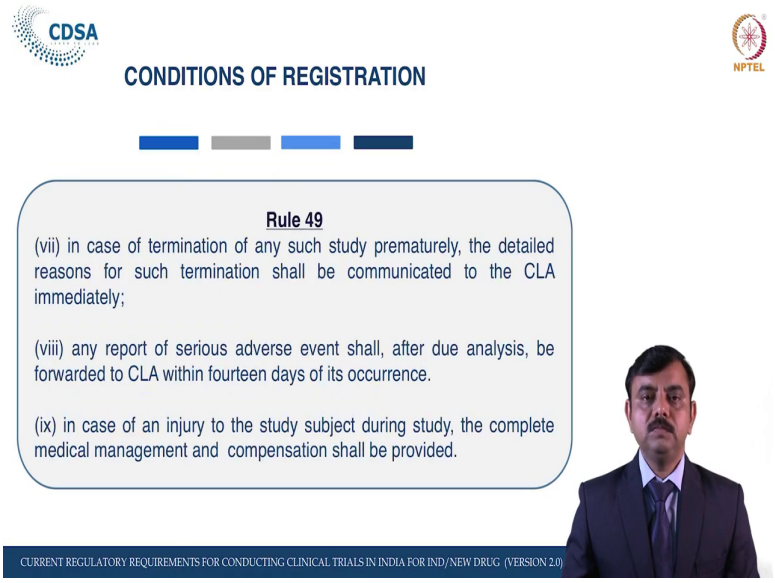

In case of termination of any such study if the study has not been conducted fully or if it has been terminated prematurely then the detailed reason for such termination shall be communicated to the central licensing authority in immediately. The next condition is that if there is any SAE or injury during the study to the subject such study shall after due analysis the investigator has to cause the analysis of that SAE why it has happened, whether it is related or whether it is not related to the study product.

After due analysis it should be forwarded to the central licensing authority within a fourteen days of it is occurrence in the format as specified in the table 5. So, there is a format given in the table 5 in which the principle investigator they have to inform to the central licensing authority in this format. In case of injury to the steady subject during study the complete medical management and compensation in case of study related injury shall be provided.

So, there is a condition that in case of the injury or SAE the complete medical management and the compensation to the subject has been has required to be given and the time period is given that within a 30 days of the receipt of the order, once the order has been passed by the licensing authority that has to be given within 30 working days.

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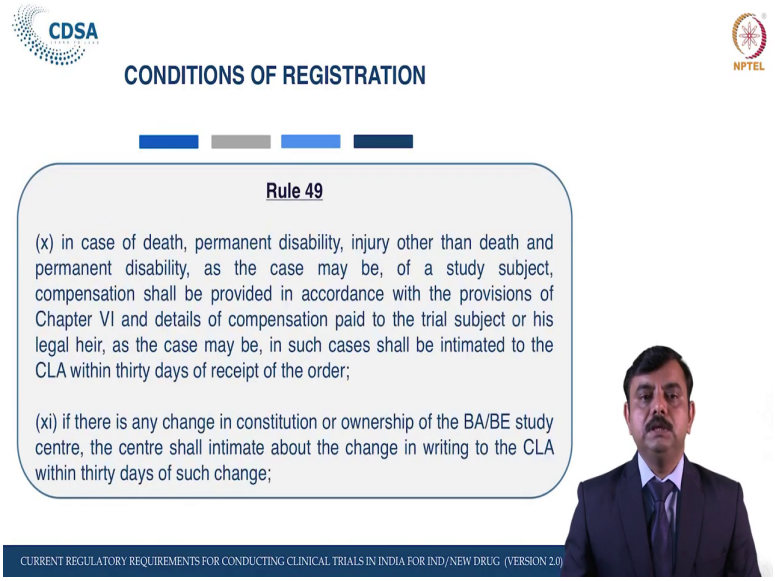

In case of death, permanent disability, injury or other than death and permanent disability as the case may be of a study subject compensation shall be provided in accordance with the provision of chapter 6 and details of compensation paid to the trial subject or his legal heir whatever the case may be in such cases shall be intimated to the central licensing authority within a thirty days. So, with whatever the compensation has paid that has to be intimated to the central licensing authority.

Further if there is any change in a constitution or ownership of this study center see once a once there is a inspection then based on that inspection the central licensing authority approves the registration, but if there is any change in the constitution of the directed bodies or change in the constitution of the ownership or there is a major change in the equipment facility then that should be communicated or that should be intimated to the central licensing authority within a 30 days of such a change.

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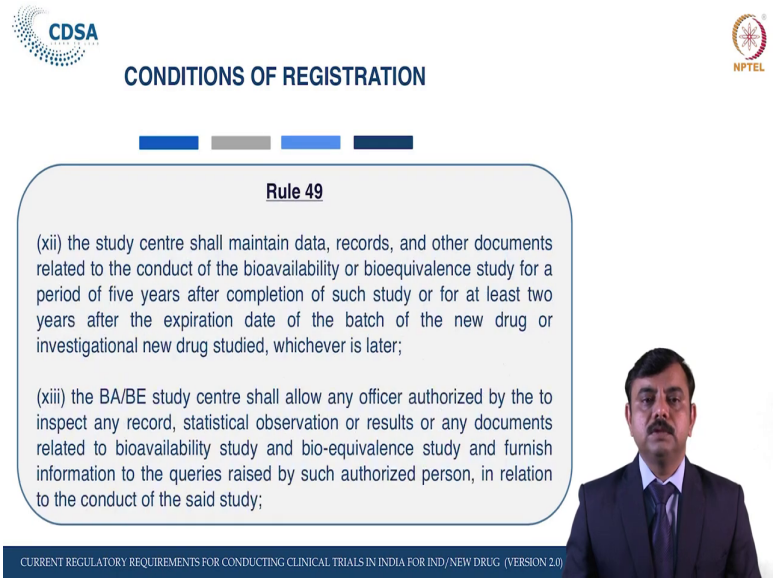

The study center shall maintain all the data, records and other documents related to the conduct of the BA BE study. The BA BE studies center shall allow officer of the CDSA that is central licensing authority he may be accompanied with the state licensing authority and they can come with or with our the permission to inspect any records statistical observation or

result or of any document related to such a study and furnish information to the queries raised by such authorized person in relation to the conduct of the state study.

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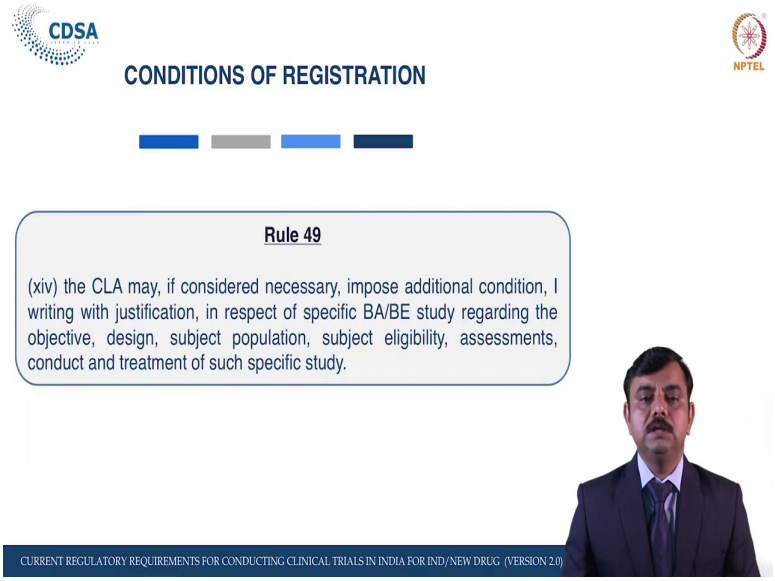

The next condition is that the central licensing authority may, if considered necessary, impose additional conditions, in writing with justification. If there are some additional condition related to the what should be the population for the study, then what should be subject eligibility that is inclusion criteria, exclusion criteria or how it should be the assessed or if it may be related with the conduct and treatment of such a specific study that conduction also can be imposed by the central licensing authority.

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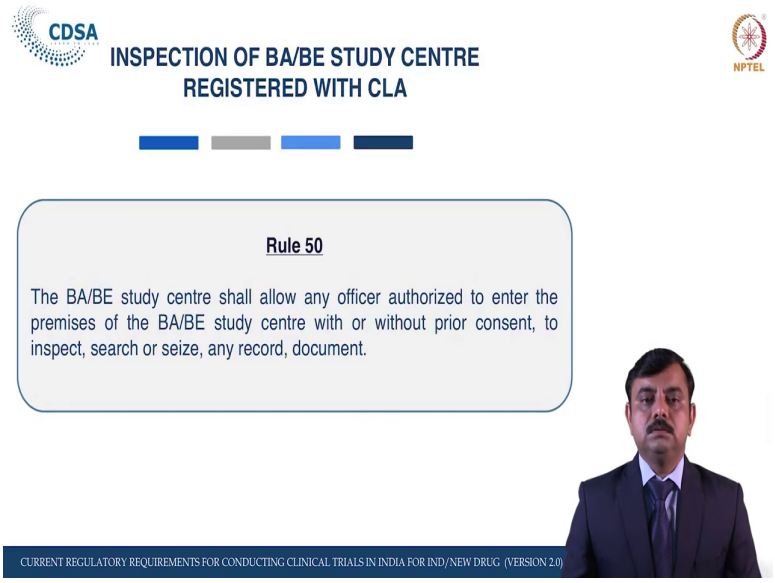

So, the BA BE study center registered by the CLA including his representative shall allow an officer this we have seen.

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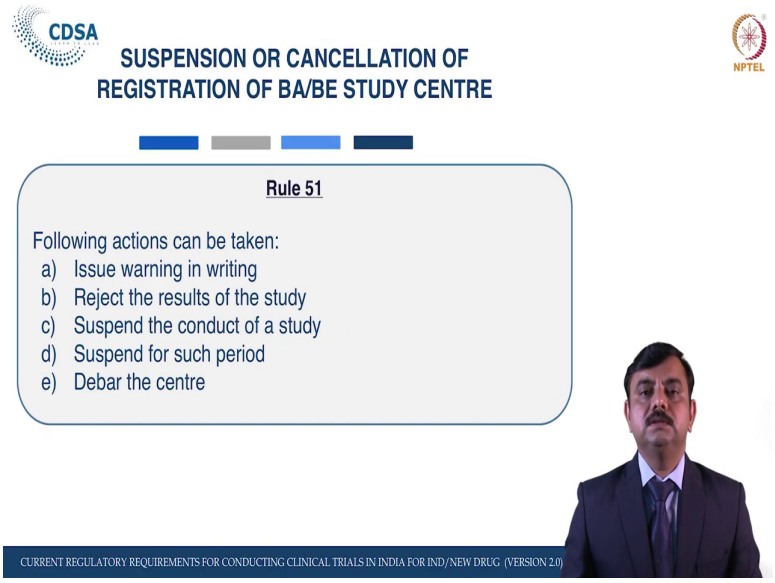

So, in case of there is a any violation and after audit if the applicant or the study center who has obtained the BA BE study approval or the study registration if found that they are not complying with the conditions of the study center and stipulated condition, the central licensing authority may after giving an opportunity to show cause and after affording an opportunity of being heard by order in writing take one or more the actions.

And, these actions may include the issue of warning letter in writing to the investigator to the BA BE study center. The licensing authority may reject the result of the study if it is not if it is found that it is not incompliance with the conditions or as per the protocol. They can suspend the conduct of this study in between also they can suspend for such a period as considered appropriate. So, it is the discretionary power of the licensing authority depending union the seriousness, and the criticality of the observation they can take a decision.

They can debar the center including it is a representative to conduct any BA BE study in the future. So, this is all about the application, permission, inspection, cancellation, suspension and appeal of the BA BE study a protocol and the BA BE study center.

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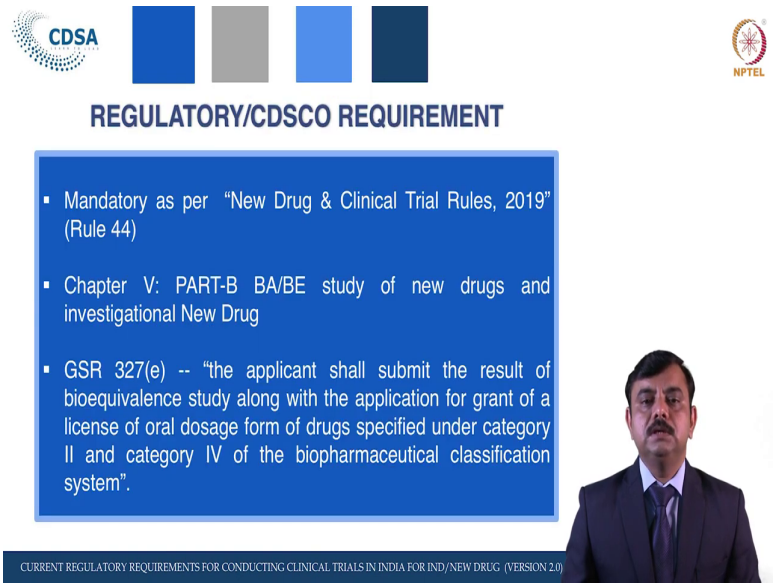

Let us see where the where is the regulatory mandate of this BA BE study and BA BE study center, exact position in the Rule. So, as we have seen that it is mandatory as per the New Drug Clinical Trial Rule 2019 in Rule 44. The chapter V is related to the BA BE study of new drug that particularly the part B.

Further there is one notification has been published by the government of India that is the GSR 327. By this application it is mandatory that the applicant shall submit the result of BA BE study along with application for grant of license of oral dosage form of drugs specified under

category II and category IV of the biopharmaceutical classification systems. So, as per the biopharmaceutical BCS classification we usually cannot.

So, as per these BCS classification if the drug falls under the category II and category IV for such type of drug the applicant required to submit the BA BE study data. Let us see which what is this class II and class IV.

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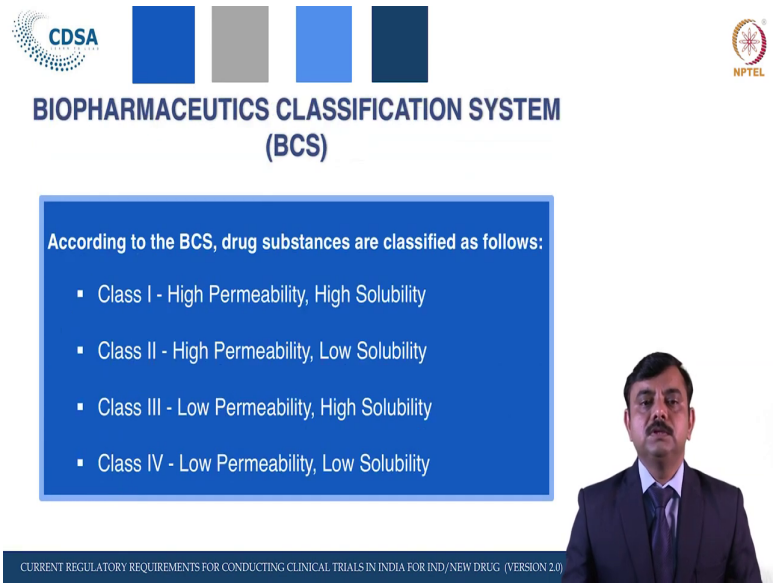

So, according to the BCS classification that is the bio pharmaceutical classification system there are four classes given. The class Ist is for the drug which are highly permeable and highly soluble. So, we have seen in such cases there is no need of the BA BE studies. Class II is high permeability, but low solubility. So, the those drug which are having low solubility there is the problem with the absorption and for such type of drug it require the BA BE study.

Class III is low permeability and high solubility in this case also it is not require as per the notification. Class IV is low permeability and low solubility. So, if there is a low permeability, low solubility in this case also it is required to have the BA BE study of that drug.

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The last part of our this presentation that is document required for approval of BA BE study center. So, in our earlier slide I have mentioned the document as per the fourth schedule table 1 many of the in many of the slides I have mentioned let us see which are these document required for the BA BE study center of a.

First is the covering letter which should mention where is the BA BE study center and which approval they require; their name and address of the organization to be registered along with its detail like telephone number, fax number, email address that has to be provided. Name and

addresses of the all the members responsible for this registration that is proprietor, partner, director so, their details.

Then the organogram of organization including brief CV of key personnel that has to be submitted status of organization as legal identity whether that has been registered or not that legal identity copy of that certificate like a registration certificate memorandum and article association that is also required to be submitted.

Then, brief profile of specific activities services undertaken by the organization including facility resources and infrastructure these have to be submitted. Then, as I have mentioned the list of equipment in the firm which are the equipment whether (Refer Time: 46:14) these are available or not which are required for the conduct of BA BE study that list of equipment has to be given.

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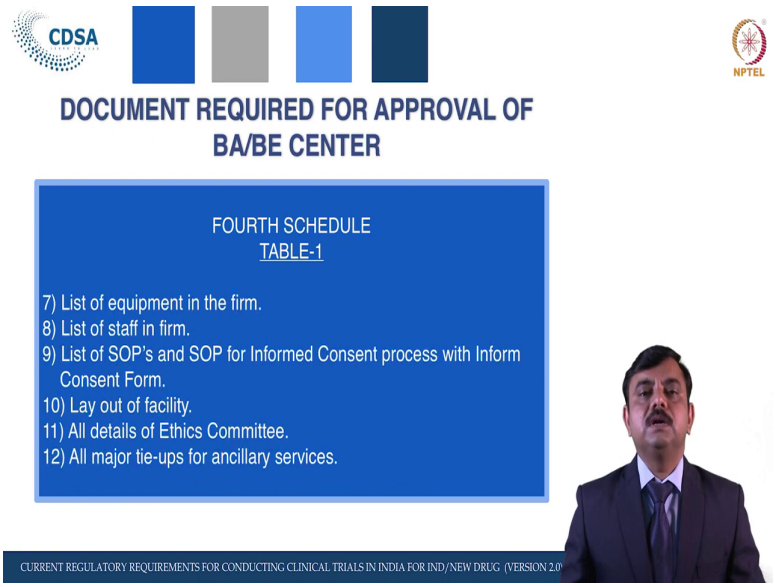

Then list of staff in the firm. Next is the list of SOPs and SOP for informed consent process and inform consent form. So, we have seen that in the clinical trial in BA BE study the inform consent form is very much having the important. So, the applicant or those who have approved a center they require to maintain the SOP how to conduct the process of the inform consent and the list of SOPs also I have to be submitted.

Then, layout of the facility, the design of the facility and its structure. All details related to the ethics committee including composition of ethics committee. So, the first of all this ethics committee should be registered, the registration number and further the certificate obtained from the licensing authority by the ethics committee including its composition that has to be submitted.

All major tie-up for ancillary services, those the agreement made with the hospitals and ambulance in case of the emergency that is required to be submitted. So, these this is all about the documentation.

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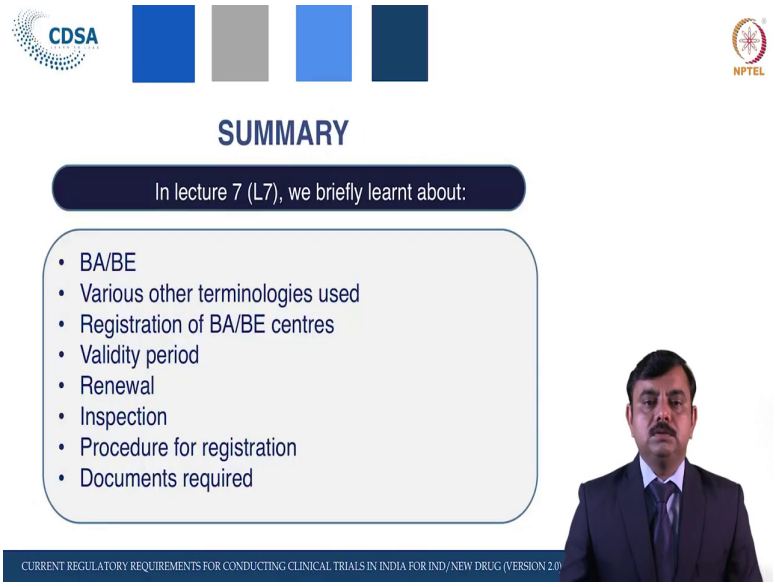

And, this is the last slide. So, let us see what we have seen in our this lecture. So, in this lecture 7, we have seen what is bioavailability, what is bioequivalence, its legal definition as per the Rule. Then, we have seen many more other definitions like efficacy, effectiveness, what is PI, no what is the IP; then we have seen the registration of BA BE center, its application, permission, condition of permission, the inspection procedure.

And, in case violation the suspension, rejection, what actions can be taken by the licensing authority. Then further we have seen its renewal, validity period and the documents which are required to be submitted for the grant of registration of BA BE study centers. So, I hope you have enjoyed this lectures and now it is your time to check whether you have understood at least to the little extent this chapter this lecture or not.

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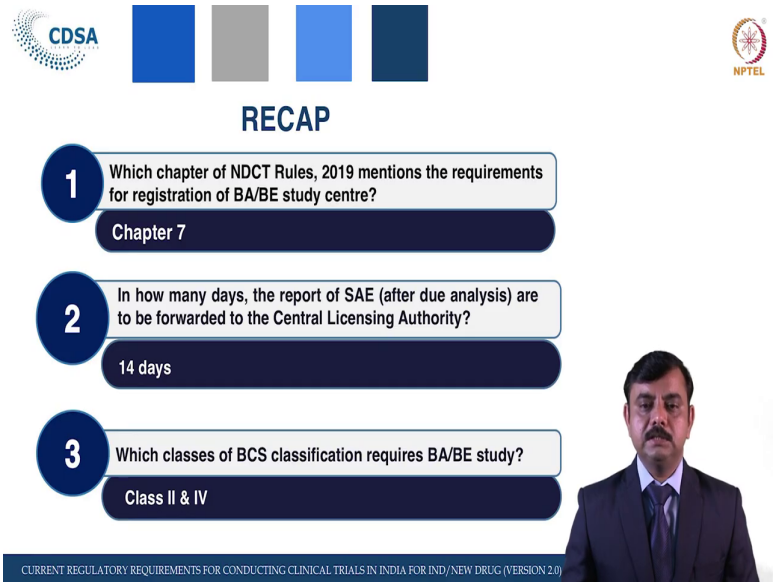

So, let us have check for your memory by asking you some question. The first question for you is that, it is very simple, which chapter of New Drug and Clinical Trial Rule, 2019 mentions the requirement for registration of BA BE study center? So, in which chapter it has been given? It is Chapter 7 wherein the requirement has been given.

The next question, the report of SAE after due analysis in how many days shall be forwarded to the central licensing authority? We have seen this in our condition of permission.

Student: (Refer Time: 49:36).

So, this is a 14 days. So, within 14 days all the SAE after due analysis not immediately has to be submitted. The next question is which classes of BCS classification require BA BE study?

So, we have seen as per new notification there are four classes. So, you have to tell which classes require the behavioral study. So, this is the class II and class IV.

Well, I think you have understood the lecture. Further we are having one more lecture with related to the BA BE study guide lines. So, the things will be better after that lecture also. So, we will see in our next lecture, till then you take care.

Bye bye and thank you.