PAPER DETAILS	*ABSTRACT*	*EXPLAINATION*
Course of Chronic Kidney Disease in Children **Wong CS, Warady BA** **2015**	This review, we will focus not only on the unique issues concerning paediatric CKD, but especially on those factors related to CKD that start during childhood and require appropriate management to optimize health outcomes of the patient. Chronic kidney disease (CKD) is a major health problem worldwide. Although relatively uncommon in children, it can be a devastating illness with many long-term consequences. CKD presents unique features in childhood and may be considered, at least in part, as a stand-alone nosology entity. Moreover, some typical features of paediatric CKD, such as the disease aetiology or cardiovascular complications, will not only influence the child's health, but also have long-term impact on the life of the adult that they will become. In this review we will focus on the unique issues of paediatric CKD, in terms of aetiology, clinical features and treatment. In addition, we will discuss factors related to CKD that start during childhood and require appropriate treatments in order to optimize health outcomes and transition to nephrologist management in adult life.	Chronic kidney disease (CKD) is a major health problem worldwide with increasing incidence and prevalence that is threatening to bring on the onset of a real 'epidemic'. Independent of the initial cause, CKD is a clinical syndrome characterized by a gradual loss of kidney function over time. In particular, the kidney disease: Improving Global Outcomes guidelines have defined CKD as abnormalities of kidney structure or function, present for more than 3 months, with implications to health. This definition has been formulated for the adult population, where CKD is a common and well-known health problem, but the KDIGO guidelines for definition and staging are not fully applicable to the paediatric population. Indeed, paediatric CKD, while sharing the basic physio pathologic mechanisms with the same disease in the adult population, could be in some ways considered a stand-alone nosology entity. Childhood CKD presents clinical features that are specific and totally peculiar to the paediatric age, such as the impact of the disease on growth. Moreover, CKD has a great psychosocial impact, both on the patient and his family. The parents not only have to fulfil the role of parents, but also take on many tasks we normally associate with nurses and doctors. Therefore, we must be aware that the increasing survival of paediatric patients with CKD, due to the improvement in the clinical and therapeutic management, will lead to a large number of affected adults facing problems that are specific to CKD that have started during childhood.

Impact of obesity on kidney function and blood pressure in children **Ding W, Cheung WW, Mak RH** **2015**	In recent years, obesity has become an increasingly important epidemic health problem in children and adolescents. The prevalence of the overweight status in children grew from 5% to 11% from 1960s to 1990s. The epidemic of obesity has been paralleled by an increase in the incidence of chronic kidney disease (CKD) and hypertension. Results of several studies have demonstrated that obesity and metabolic syndrome were independent predictors of renal injury. The pathophysiology of obesity related hypertension is complex, including activation of sympathetic nervous system, renin angiotensin aldosterone system, hyperinsulinemia and inflammation. These same mechanisms likely contribute to the development of increased blood pressure in children. This review summarizes the recent epidemiologic data linking obesity with CKD and hypertension in children, as well as the potential mechanisms.	Throughout the world, the increasing rate of childhood obesity has been steadily on the rise over the past decades. In the first decade of this century, up to 28% of school and 12% of preschool children were determined to be overweight or obese in developed countries, and the international obesity task force addressed childhood obesity as a global "public health crisis". The impact of obesity on metabolic disease has been well demonstrated, and recently there is increasing evidence that obesity appears to be an independent risk factor for chronic kidney disease (CKD). Baseline body mass index (BMI) has been suggested as an independent predictor of CKD progression. Obesity is strongly associated with the two most common causes of end-stage renal disease (ESRD), namely hypertension and diabetes. In addition, the metabolic syndrome, a major consequence of obesity, also seems to be an independent risk factor for ESRD. Recent evidence also supports the hypothesis that reduced insulin sensitivity and hyperinsulinemia are among the most important factors leading to renal injury. In concert with the increasing prevalence of obesity in children, hypertension has also made an epidemiological shift. Hypertension is a common feature present in a large proportion of obese and overweight individuals. It is correlated with the degree of obesity and significantly increased the risk of coronary artery, stroke and peripheral artery diseases. Moreover, the burden of hypertension attributable to obesity is very high. This review focuses on the impact of obesity on the kidney and blood pressure in children as well as the mechanisms linking obesity to CKD and hypertension.

Predictive Analytics for Chronic Kidney Disease using Machine Tearing Techniques **Anusorn Charleonnan, Thipwan Fufaung, Tippawan Niyomwong, Wandee Chokchueypattanakit, Sathit Suwannawach, Nitat Ninchawee** **2016**	Predictive analytics for healthcare using machine learning is a challenged task to help doctors decide the exact treatments for saving lives. In this paper, we present machine learning techniques for predicting the chronic kidney disease using clinical data. Four machine learning methods are explored including K-nearest neighbours (KNN), support vector machine (SVM), logistic regression (LR), and decision tree classifiers. These predictive models are constructed from chronic kidney disease dataset and the performance of these models are compared together in order to select the best classifier for predicting the chronic kidney disease.	Currently, applying master's degree is a very expensive and intensive work. Since, there are many graduates who are applying for master's degree in other countries whether there is an admission chance in a particular university or the graduate can apply to another university. For the university administration to filter the graduates who applied for the university. So, predictive modelling using machine learning techniques are applied to the dataset in order to predict. Predictive modelling is the problem of developing a model using historical data to make a prediction on a new data where we do not have any answer. Predictive modelling is a mathematical problem of approximation where a mapping function (f) from input variables (x) to output variable(y). y=f(x). The modelling algorithm finds the best mapping function that can give time and resources available. Based on the mean errors we can predict the model but, in this paper, classification predictive modelling metrics and regression predictive modelling metrics are used on the dataset for prediction. Classification is the problem of predicting a discrete value whereas regression is used to predict the continuous value. In Classification predictive modelling, based on classification accuracy given by the confusion matrix for the model is calculated for making a prediction. In Regression modelling based on regression metrics such as adjusted R square, mean square error, root mean squared error etc are used for prediction. The main objective of the study is to explore the feasibility of applying machine learning algorithms to graduate admissions dataset and developing predictive models that will help in predicting the chance of admission. The objective of the study is: to prepare a dataset for training the predictive models; to develop different predictive models using machine learning algorithms such as linear regression, logistic regression, support vector machine in R; to evaluate and select most

		appropriate predictive model through their accuracies and some of the regression metrics.
Applying Machine Learning Techniques for Predicting The Risk of Chronic Kidney Disease	This paper aims at predicting the early detection of chronic kidney disease also known as chronic renal disease for diabetic patients with the help of machine learning methods and finally suggests a decision tree to arrive at concrete results with desirable accuracy by measuring its performance to its specification and sensitiveness. The behaviour of learning algorithms determined on a set of data mining indicators has a proportionate effect on the resulting models. Discovering the knowledge from wide databases is termed as Data mining. Besides studying the existing available Clinic Foundation Heart Disease dataset, 600 clinical records collected by us from a leading Chennai based diabetes research centre. We have tested the dataset for classification using Naïve Bayes and Decision tree method. Findings: On comparing the classification algorithms with respect to Naïve Bayes and Decision tree, we came to conclusion that the accuracy is up to 91% for Decision tree classification. Applications/Improvement: In order to increase the accuracy of the prediction result, we have utilized algorithms such as	Data mining is becoming more popular nowadays in healthcare, as also in fraud, abuse detection etc. In1 classification is a more useful data mining function to handle items in a collection to target categories or classes. In2 kidney failure falls one among several classes viz heart disease, blindness etc which results due to chronic Diabetes3 . Dialysis is the only method to keep the kidneys function artificially and it is also painful and expensive process. According to World Health Organization about millions of people around the world are suffering from severe kidney disorder and its number is increasing every year4,5. Therefore, an early diagnosing technique is immediately required so that precautions or controls can be taken before hand in time. For obtaining essential information from medical databases Data mining technique was found very much useful. By combining machine learning and

K. R. Anantha Padmanaban and G. Parthiban **2016**	neural network and clustering data which greatly helped in our mission and also gave scope for future research.	statistical analysis intelligently, very useful information can be drawn from medical databases. Machine learning methods which coordinate various statistical analyses and databases helps us to extract hidden patterns and relationships from huge and multiple variable data. In order to ensure the chosen classifier's accuracy, the available test phases are verified. Moreover, these attributes like Specificity, sensitivity, and accuracy are common for disease detection. By applying Naïve Bayes and Decision tree techniques for our desired classification methods, we were able to achieve the result of identification of Kidney disorder at the early stages.

Heart Disease Prediction Using Machine learning and Data Mining Technique **Jaymin Patel, Prof.Tejal Upadhyay, Dr. Samir Patel**	Heart disease is the main reason for death in the world over the last decade. Almost one person dies of heart disease about every minute in the United States alone. Researchers have been using several data mining techniques to help health care professionals in the diagnosis of heart disease. However, using data mining technique can reduce the number of tests that are required. In order to reduce number of deaths from heart diseases there have to be a quick and efficient detection technique. Decision Tree is one of the effective data mining methods used. This research compares different algorithms of Decision Tree classification seeking better performance in heart disease diagnosis using WEKA. The algorithms which are tested is J48 algorithm, Logistic model tree algorithm and Random Forest algorithm. The existing datasets of heart disease patients from Cleveland database of UCI repository is used to test and justify the performance of decision tree algorithms. This dataset consists of 303 instances and 76 attributes. Subsequently, the classification algorithm that has	Heart disease is the leading cause of death in the world over the past 10 years (World Health Organization 2007). The European Public Health Alliance reported that heart attacks, strokes and other circulatory diseases account for 41% of all deaths (European Public Health Alliance 2010). Several different symptoms are associated with heart disease, which makes it difficult to diagnose it quicker and better. Working on heart disease patients' databases can be compared to real-life application. Doctors' knowledge to assign the weight to each attribute. More weight is assigned to the attribute having high impact on disease prediction. Therefore, it appears reasonable to try utilizing the knowledge and experience of several specialists collected in databases towards assisting the diagnosis process. It also provides healthcare professionals an extra source of knowledge for making decisions. The

2016	optimal potential will be suggested for use in sizeable data. The goal of this study is to extract hidden patterns by applying data mining techniques, which are noteworthy to heart diseases and to predict the presence of heart disease in patients where this presence is valued from no presence to likely presence	healthcare industry collects large amounts of health-care data and that need to be mined to discover hidden information for effective decision making. Motivated by the world-wide increasing mortality of heart disease patients each year and the availability of huge amount of patients' data from which to extract useful knowledge, researchers have been using data mining techniques to help health care professionals in the diagnosis of heart disease. Data mining is the exploration of large datasets to extract hidden and previously unknown patterns, relationships and knowledge that are difficult to detect with traditional statistical methods (Lee, Liao et al. 2000). Thus, data mining refers to mining or extracting knowledge from large amounts of data. Data mining applications will be used for better health policy-making and prevention of hospital errors, early detection, prevention of diseases and preventable hospital deaths (Ruben 2009). Heart disease prediction system can assist medical professionals in predicting heart disease based on the clinical data of patients. Hence by implementing a heart disease prediction system using Data Mining techniques and doing some sort of data mining on various heart disease attributes, it can able to predict more probabilistically that the patients will be diagnosed with heart disease. This paper presents a new model that enhances the Decision Tree accuracy in identifying heart disease patients. It uses the different algorithm of Decision Trees.

Septic Shock Prediction for Patients with Missing Data **J. C. Ho, C. H. Lee, and J. Ghosh** **2020**	Sepsis and septic shock are common and potentially fatal conditions that often occur in intensive care unit (ICU) patients. Early prediction of patients at risk for septic shock is therefore crucial to minimizing the effects of these complications. Potential indications for septic shock risk span a wide range of measurements, including physiological data gathered at different temporal resolutions and gene expression levels, leading to a nontrivial prediction problem. Previous works on septic shock prediction have used small, carefully curated datasets or clinical measurements that may not be available for many ICU patients. The recent availability of a large, rich ICU dataset called MIMIC-II has provided the opportunity for more extensive modelling of this problem. However, such a large clinical dataset inevitably contains a substantial amount of missing data. We investigate how different imputation selection criteria and methods can overcome the missing data problem. Our results show that imputation methods in conjunction with predictive modelling can lead to accurate septic shock prediction, even if the features are restricted primarily to non-invasive measurements. Our models provide a generalized approach for predicting septic shock in any ICU patient.	Sepsis is a serious condition that has a history of being ill-defined and difficult to diagnose. It is only recently that clinical consensus definitions of sepsis have been developed, thus removing a major obstacle for conducting comparative studies on the morbidity and mor*tality of sepsis. The most recent definition of sepsis, Sepsis-3, defines sepsis as a "life-threatening organ dysfunction caused by a dysregulated host response to an infection". In layman's terms, this means that the immune system causes damage to its own body's tissues while fighting an infection. Septic shock is a subset of sepsis where one can observe circulatory, cellular, and metabolic abnormalities which are associated with greater mortality rates than regular sepsis. Importantly, several studies have shown that early treatment of patients with sepsis greatly improves their chance of survival. The symptoms caused by sepsis and septic shock are associated with average in-hospital mortality rates of at least 10% and 40% respectively, and data suggests that it can rise as high as 30% for sepsis and 80% for septic shock. In developed countries, sepsis occurs in about 2% of all hospitalisations, with more than 50% of patients with severe sepsis requiring intensive care. The number of new cases each year per 100,000 people in the developed world is between 150 and 240 for sepsis, 50 and 100 for severe sepsis, and roughly 11 for septic shock. It is estimated that in the United States there are somewhere between 500,000 to more than 1,000,000 cases of sepsis every year. In 2011, sepsis accounted for more than $20 billion (5.2%) of all hospital costs in the US. In addition, it seems to be the case that the number of sepsis cases is increasing at a quicker rate than the population, possibly due to an increased median age. A study spanning two decades, from 1979 to 2000, reported an annual increase of sepsis cases of around 8.7%. There is less data available for low- and middle-income

		countries, but since infectious diseases are much more common than in the developed world it is reasonable to assume that sepsis is at least as common in the developing world as in the developed. Traditional scoring systems such as APACHE (Acute Physiology, Age, Chronic Health Evaluation), SAPS (Simplified Acute Physiology Score), and SOFA (Sequential Organ Failure Assessment) inform clinicians about disease severity and may help to discriminate between survivors and non-survivors, but they are not tools for early detection of sepsis. In order to diagnose sepsis, physicians rely on highly manifest changes in a combination of clinical variables in response to the physiological insult caused by an infection. However, temporal dependencies and subtle physiological changes may provide an indication of imminent sepsis prior to the life-threatening organ dysfunction that is required for fulfilling the current diagnostic criteria for sepsis. Since it is not humanly possible to consider all these effects and findings for every single patient, automatic analysis tools have to be developed. Various machine learning algorithms have been investigated for early detection of sepsis. Following is a brief summary of five notable examples of such algorithms. In 2015, Henry *et al*. developed the Targeted Real-time Early Warning Score (TREWScore) for early detection of septic shock by fitting a Cox proportional hazards model to data extracted from the Multiparameter Intelligent Monitoring in Intensive Care (MIMIC-II) database. Calvert *et al*. used time series analysis on data from MIMIC-II to develop a system for early detection of sepsis called "InSight". In 2017, Harutyunyan *et al*. developed a multitask Long Short-Term Memory (LSTM) neural network for early detection of a host of conditions, including sepsis, using the Medical Information Mart for Intensive Care (MIMIC-III) database. The same year Kam and Kim created

		SepLSTM, an LSTM network based on the work of Calvert *et al*., that can perform early detection of sepsis with greater accuracy than Insight. Lastly, in 2019 Liu *et al*. used several machine learning models to predict a hypothesized "pre-shock" state, leading to improved performance in identifying patients who are likely to develop septic shock. For our study, we used these five algorithms as a representation of the state-of-the-art in early detection of sepsis and to provide a more comprehensive context in which our algorithm can be placed. The goal of the study was twofold: (1) to develop an improved algorithm for early detection of septic shock and (2) to compare it with state-of-the-art algorithms for early sepsis detection. These algorithms can primarily be improved by increasing the number of correct predictions as well as by providing these predictions earlier since early treatment is a key factor for patient survival. To improve comparability, we replicated the TREWS core study, employing the same input variables and target definitions but substituting the Cox proportional hazards model for an LSTM network.

A Relative similarity-based Method for Interactive Patient Risk Prediction **B. Qian, X. Wang, N. Cao, H. Li, and Y.-G. Jiang** **2015**	General health examination is an integral part of healthcare. Identifying the participants at risk is important for early warning and preventive intervention. The fundamental challenge of classification model for risk prediction is the unlabelled data that constitutes the majority of the collected dataset. The unlabelled data describes the participants in the health examination record whose health conditions can vary greatly from healthy state to very-ill. There is no ground truth for differentiating their states of health. Huge amounts of Electronic Health Records (EHRs) collected over the years have provided a rich base for risk analysis and prediction. The proposed system presents an improved classification known as C4.5 algorithm to handle a challenging multi-class classification problem with substantial unlabelled cases. C4.5 constructs a decision tree starting from a training set with the divide and conquers strategy. C4.5 is based on the information gain ratio that is evaluated by entropy. The information gain ratio measure is used to select the test features at each node in the tree. Such a measure is referred to as a feature (attribute) selection measure. The attribute with the highest information gain ratio is chosen as the test feature for the current node. The results show that the proposed systems achieve effectiveness and efficiency on both real health examination datasets and synthetic datasets.	Huge amounts of Electronic Health Records (EHRs)collected over the years have provided a rich base for risk analysis and prediction. An EHR contains digitally stored healthcare information about an individual, such as observations, laboratory tests, diagnostic reports, medications, procedures, patient identifying information, and allergies. A special type of EHR is the Health Examination Records (HER) from annual general health check-ups. Hers are collected for regular surveillance and preventive purposes, covering a comprehensive set of general health measures all collected at a point in time in a systematic way. Identifying participants at risk based on their current and past HERs is important for early warning and preventive intervention. The goal of risk prediction is to effectively classify whether a health examination participant is at risk, and if yes, predict what the key associated disease category is. A good risk prediction model should be able to exclude the low-risk situations thereby clearly identifying the high-risk situations that are related to some specific diseases. A fundamental challenge is the large quantity of unlabelled data. Most existing classification methods on healthcare data do not consider the issue of unlabelled data. They either have expert-defined low-risk or control classes or simply treat non-positive cases as negative. Methods that consider unlabelled data are generally based on Semi-Supervised Learning (SSL) that learns from both labelled and unlabelled data. Amongst these SSL methods, only handle large and genuinely unlabelled health data. However, unlike our scenario, both methods are designed for binary classification and have predefined negative cases. A closely related approach is Positive and Unlabelled (PU)learning, which can be seen as a special case of SSL with only positive labels available. other key challenge of HERs is heterogeneity. It demonstrates the

		health examination records of Participants with test items in different categories. This example shows that • A patient may have a sequence of irregularly time- stamped longitudinal Health records, each of which is likely to be sparse in terms of abnormal results. • Test items are naturally in categories, each conveying different semantic sand possibly contributing differently in risk identification.

A Survey on Implementation Of Machine Learning Techniques for Dermatology Diseases Classification **Madhura Rambhajani, Wyomesh Deepanker, Neelam Pathak**	The availability of various computational and predictions tools helps doctors and practitioners to cope up with their problems in their daily clinical tasks. These computational methods are known as machine learning techniques which is a novel approach to improve its performance through the use of software to mimic the ways by which human learn such as repetition, experience etc. These methods have been successfully implemented in various sectors like finance, health care etc. This paper presents a review on various machine learning techniques such as Data mining, Soft Computing, Hybrid method etc and the survey of application of machine learning techniques for classification of various dermatology diseases in past two decades.	Today diseases diagnosis is a very crucial task in medical science. It is necessary to interpret the correct diagnosis of patients with help of clinical investigations and examination. Computer based decision support system can play an important role in accurate diagnosis and cost-effective treatment. Now a day's health care domain gathers a bulk amount of information or data regarding clinical examination, patient report, treatment, follow ups, medicine etc is difficult to organize in proper manner. Due to improper organization of the data the quality of decision making is getting affected. This increase in volume of bulk of data requires some way in which data can be extracted and processed efficiently. Health care industry today generate a large amount of complex data about patients record, diseases diagnosis, hospital resource , electronic patient records etc There are wide applications in health care sector which are as

2015		follows : (I)Treatment effectiveness (ii)Health-care management (ii)Customer relationship management (iv)Fraud and abuse (v)Pharmaceutical management This can be possible with the help of information technology, the use of information technology is being increasingly implemented in health care organization in order to help doctors in their day to day decision making activities. It helps doctors and physicians in diseases management, tests, medications and discovery of patterns and relationships among clinical and diagnosis data and as well as employ machine learning techniques. Machine learning is the science of getting computers to act without being explicitly programmed. In the past decade, machine learning has given us self-driving cars, practical speech recognition, effective web search, and a vastly improved understanding of the human genome. Machine learning is so pervasive today that one can probably use it dozens of times a day without knowing it. Many researchers also think it is the best way to make progress towards human level. Machine-learning techniques are data-driven approaches that are designed to discover statistical patterns in high dimensional, multivariate data sets, such as those that are frequently found in electronic health record (EHR) systems. The theme of Machine Learning Techniques is in identification pattern that provides support for predictions and decision-making process for diagnosis and treatment planning. The Machine Learning Techniques has been applied with success to

		different fields other than health care like marketing, banking, Customer relationship management, engineering, crime analysis, mobile computing and various fields of science. Machine learning algorithms have been used in a variety of applications. They have been shown to be of special use in data mining scenarios involving large databases and where the domain is poorly understood and therefore difficult to model by humans. These techniques are able to handle large amounts of data, to integrate data from different sources, and to incorporate background knowledge in the analysis. In this paper rest of the section is organized is as follow: It first gives detail explanation of machine learning techniques and its different categories. In section 3 we have discussed about contribution done by different researchers in context to differential diagnosis of erythemato squmous diseases and its classification. The article ends by concluding with a summary of investigated methods with their results.

Prediction Of Chronic Kidney Disease Using Random Forest Machine Learning Algorithm **Manish Kumar** **2016**	The healthcare industry is producing massive amounts of data which need to be mine to discover hidden information for effective prediction, exploration, diagnosis and decision making. Machine learning techniques can help and provides medication to handle these circumstances. Moreover, Chronic Kidney Disease prediction is one of the most central problems in medical decision making because it is one of the leading causes of death. So, automated tool for early prediction of this disease will be useful to cure. In this study, the experiments were conducted for the prediction task of chronic kidney disease obtained from UCI Machine Learning repository using the six machine learning algorithms, namely: Random Forest (RF) classifiers, Sequential Minimal Optimization (SMO), Naive Bayes, Radial Basis Function (RBF) and Multilayer Perceptron Classifier (MLPC) and Simple Logistic (SLG). The feature selected is used for training and testing of each classifier individually with ten-fold cross validation. The results obtained show that the RF classifier outperforms other classifiers in terms of Area under the ROC curve (AUC), accuracy and MCC with values 1.0, 1.0 and 1.0 respectively	Kidneys are a pair of organs positioned toward the lower back of the abdomen. Its work is to purify blood by removing toxins material from the body using bladder through urination. When kidneys incapable to filter waste then body becomes encumbered with toxins, cause kidney failure and consequently can lead to death Kidney problems can be categorized to either acute or chronic. Chronic kidney disease comprises circumstances that harm kidneys and reduce its ability to keep us healthy. If kidney disease gets worse, wastes can build to high levels in our blood and may cause difficulties like high blood pressure, anaemia (low blood count), weak bones, poor nutritional health and nerve damage. Also, kidney disease increases the risk of having heart and blood vessel disease. Chronic kidney disease may be caused by diabetes, high blood pressure, hypertension, coronary artery disease, lupus, Anaemia, Bacteria and albumin in urine, complications from some medications, Deficiency of Sodium and Potassium in blood and Family history of kidney disease and many more. Early revealing and treatment can often keep chronic kidney disease from getting worse. When kidney disease progresses, it may eventually lead to kidney failure, which requires dialysis or a kidney transplant to maintain life. Machine Learning is a growing field concerned with the study of enormous and several variable data and grown from the study of pattern recognition and computational learning theory in artificial intelligence, having computational methods, algorithms and techniques for analysis and prediction. In Medical Science's viewpoint, Machine Learning techniques have showed success in prediction and diagnosis of numerous critical diseases. In this strategy some set of features are used for the representation of every instance in any dataset is used. Furthermore, human professionals and experts are limited in finding hidden pattern from data. Hence, the alternative is to use computational methods to investigate the raw data and mine exciting information for the decision-maker. Abeer Y. Al-Hyari et al used and compared the performance of Artificial Neural Network (NN), Decision Tree (DT) and Naïve Bayes (NB) to predict chronic kidney disease. Xudong Song, Zhanzhi Qiu, Jianwei Mu et al proposed a new variable precision rough set

		decision tree classification algorithm based on weighted limit number explicit region. N. SRIRAAM, V. NATASHA and H. KAUR et al used data mining approach of parametric evaluation to advance the treatment of kidney dialysis patient. Jicksy Susan Jose, R.Sivakami, N. Uma Maheswari, R.Venkatesh et al described an effective Diagnosis of Kidney Images Using Association Rules. Divya Jain et al offered effect of diabetes on kidney using C4.5 algorithm with Tanagra tool. The performance of classifier is evaluated in terms of recall, precision and error rate. Koushal Kumar and Abhishek et al compared the three neural networks such as (MLP, LVQ, RBF) on the basis of its accuracy, time taken to build model, and training data set size for kidney stone disease. So, the healthcare industry is producing massive amounts of data which need to be mine to discover hidden information for effective prediction, exploration, diagnosis and decision making. Machine learning techniques can help and provides medication to handle these circumstances. Moreover, Chronic Kidney Disease prediction is one of the most central problems in medical decision making because it is one of the leading causes of death. So, automated tool for early prediction of this disease will be useful to cure. In this study, we experimented on the dataset of chronic kidney disease to explore the machine learning algorithm to find outperforming algorithm for our considered domain.

Current Management of Chronic Kidney Disease	Chronic kidney disease is a progressive, irreversible decline in renal function in which the body's ability to maintain metabolic and fluid and electrolyte balance fails, resulting in uraemia or azotaemia. It is not a single disease and associated with different medical conditions such as diabetes, hypertension and anaemia; Even though it is caused by primary kidney disease (e.g., glomerular diseases, tubulointerstitial diseases, obstruction, and polycystic kidney disease). Early detection, prevention, evaluation, and management of chronic kidney disease and antecedent conditions could prevent complications of decreased kidney function, slow the progression of kidney disease to kidney failure, and reduce cardiovascular disease	Chronic Renal Failure (CRF) is a global public health crisis that tends to take dimensions of epidemic and has severe impact on quality of patient's life [1]. It is a progressive, irreversible deterioration in renal function in which the body's ability to sustain metabolic and fluid and electrolyte balance fails, resulting in uraemia or azotaemia (retention of urea and other nitrogenous wastes in the blood) [2]. The kidneys regulate the composition and volume of blood, remove metabolic wastes in the urine, and help control the acid/ base balance in the body. It is typically a progressive disease and is defined as; reduction of kidney functiondefined as an estimated

Belayneh Kefale **2018**	risk. Most patients with chronic kidney disease will die of events related to cardiovascular disease before end-stage renal disease develops. Different studies used as evidence that mild to moderate degrees of renal impairment are associated with increased cardiovascular risk. Therefore; an important focus of care for patients with chronic kidney disease includes management of cardiovascular risk factors and other complications and life style modification. There is no cure for kidney disease, but it may be possible to discontinue its progress or at least slow down the progress. At last dialysis and transplant are the most frequent treatment methods for end stage renal failure. But these treatment methods are not affordable by most of the population. This makes the development of new therapeutic options for treating chronic kidney disease increasingly important.	glomerular filtration rate (eGFR) < 60 mL/min/1.73 m2 and/ or evidence of kidney damage, including persistent albuminuria-defined as > 30 mg of urine albumin per gram of urine creatinine. It is virtually always asymptomatic in its early stages [3,4]. It is not a single disease and defined based on the presence or absence of kidney damage and level of kidney function - irrespective of the type of kidney disease. It is categorized by the level of kidney function, based on GFR, into stages 1 to 5, with each increasing number indicating a more advanced stage of the disease, as defined by a declining GFR. This classification system from the National Kidney Foundation's Kidney Dialysis Outcomes and Quality Initiative (K/DOQI) also accounts for structural evidence of kidney injure [5]. There is a mixture of causes and the damage is usually irreversible and can lead to ill health. The main risk factors, which lead to chronic renal failure, are diabetes, hypertension, anaemia, osteodystrophy, glomerulonephritis, malnutrition and polycystic kidney disease [1,6]. Decisions regarding risk factor modification should be taken on an individual basis. In some cases, dialysis or transplantation may become necessary.