EXOCRINE PANCREATIC INSUFFICIENCY FOLLOWING GASTRECTOMY AND QUALITY OF LIFE IN PATIENTS UNDERGOING GASTRIC RESECTION FOR MALIGNANCY

A dissertation submitted in partial fulfilment of the requirement of the Tamil Nadu Dr. M. G. R. Medical University, Chennai for the

M. S Branch I (General Surgery) examination

to be held in May 2019.

CERTIFICATE

This is to certify that the dissertation titled “Exocrine pancreatic insufficiency following gastrectomy and quality of life in patients undergoing gastric resection for malignancy” is a bonafide original work of Dr. Rajeevan. P.S, submitted in partial fulfilment of the rules and regulations of the M.S (Branch I) General Surgery examination of the Tamil Nadu Dr. M.G.R Medical University, Chennai to be held in May 2019.

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ACKNOWLEDGEMENTS

I would like to express my special thanks and profound gratitude to my guide Dr. Inian Samarasam for being there right from the formulation of topic to its very submission. I am grateful his patience valuable time and guidance on conducting this study. I would like to thank Dr. Vijay Abraham and Dr. Sam Varghese George for continuous guidance and advice on patient recruitment methods and troubleshooting during the course of data collection. I would like to thank all the consultants, registrars and interns who rotated through the Department of Upper Gastrointestinal surgery for help in recruiting the patients. I would thank my head of department, Dr. Sukria Nayak for facilitating the study. I would like to thank Mrs. Grace Rebekah for help with sample size calculation and data analysis. I would like to thank Dr. Sam Marconi David for help with reviewing the data analysis methods.

I would like to thank Dr. Tanushree, Dr. Neethu and Ms. Shiren for help with the data collection and data entry. I would like to thank the staff and technical department of P3 ward and Wellcome Biochemistry lab for help with sample collection and analysis. I would like to thank Mrs. Hema for secretarial help.

I thank my parents Dr. Philip Sridhar and Mrs. Sujatha Philip for being there to support me. I thank my sister Ms. Jaishree Sarojini for being there to support me during the course of this thesis.

Last but not the least I would thank the Lord Almighty for strengthening me and guiding me at each and every step.

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ABBREVIATIONS

ANOVA – Analysis of variance

CAD – Coronary artery disease

CCK – Cholecystokinin

ELISA - Enzyme Linked Immunosorbent Assay

EORTC – European Organisation for Research and Treatment of Cancer

EPI – Exocrine pancreatic insufficiency

GI - Gastrointestinal

PERT – Pancreatic enzyme replacement therapy

QLQ – Quality of life Questionnaire

QOL – Quality of life

SD – Standard Deviation

STG – Subtotal gastrectomy

TG – Total gastrectomy

ABSTRACT

Exocrine pancreatic insufficiency following gastrectomy and quality of life in patients undergoing gastric resection for malignancy

Background

Gastrectomy for adenocarcinoma stomach is a major procedure that causes significant morbidity to the patient and can influence the quality of life of patients. One major concerns following gastrectomy is the complaints of post-operative steatorrhea and weight loss which is attributed to lipid malabsorption. One of the postulated causes of lipid malabsorption following gastrectomy and Roux en Y reconstruction is exocrine pancreatic enzyme insufficiency.

Aim and objectives

To find the incidence of exocrine pancreas insufficiency following gastrectomy, for gastric cancer and to assess the quality of life in patients undergoing gastric resection for malignancy.

Materials and Method

This was a cross-sectional study among patients undergoing gastric resection for adenocarcinoma in the Upper GI surgical unit, Department of General Surgery in Christian Medical College, Vellore. Patients planned for gastrectomy fulfilling the study recruitment criteria and consented for the study were tested for stool elastase pre-operatively and post-operatively. Continuous sampling of all eligible patients were done

till sample size was reached. All patients who underwent gastrectomy for adenocarcinoma stomach during the study period in 2017 were assessed for quality of life using a semi structured questionnaire from a validated questionnaire EORTC QLQ C30 and EORTC QLQ STO22 during their postoperative period. Retrospective QOL analysis was performed on the patients who had undergone gastrectomy for adenocarcinoma stomach between the years 2013 and 2016. Data was entered using Epidata 3.1 and analysed using SPSS 23.

Results

The incidence of exocrine pancreatic insufficiency calculated by stool elastase testing in subtotal and total gastrectomy was 40% and 16.7% respectively. The overall incidence of exocrine pancreatic insufficiency in gastrectomy was 34.6% None of the patients in the study had significant clinical symptoms suggestive of steatorrhea or fat malabsorption. The was no statistical difference between total and subtotal gastrectomy with the incidence of exocrine pancreatic insufficiency. More number of patients at 1-year follow-up have higher pain and eating restriction score which decreases as the follow up time period increases. Quality of life score was not influenced by the type of gastrectomy, method of surgery, stage of disease at presentation or the resection intent. As the follow up time period from time of surgery increases by a month, the overall quality of life score decreases by 2 points.

Conclusions

The incidence of exocrine pancreatic insufficiency following gastric resection for malignancy is low in our population compared to the Western data. Routine

supplementation of pancreatic enzyme supplements to all patients undergoing gastrectomy may not be required. However, screening for pancreatic insufficiency by stool elastase testing, in the subgroup of patients who are malnourished or have symptoms of fat malabsorption may help detect this problem, which can be addressed effectively by exocrine pancreatic supplementation.

Keywords: Gastrectomy, Exocrine pancreatic insufficiency, Quality of life, Stool elastase

INTRODUCTION

Stomach cancer is one of the most common cancers in India and also a major cause of cancer related death in India. Gastrectomy is the surgical option for the management of gastric adenocarcinoma along with neoadjuvant and adjuvant therapy. Gastrectomy is a major surgery which involves significant changes to the anatomy of the digestive tract of the patient. The long-term problems of gastrectomy would include steatorrhea caused by lipid malabsorption. Many theories have been postulated for the cause of malabsorption of lipids. Pancreatic insufficiency is one of the reasons postulated for the development of lipid malabsorption following gastrectomy. Establishing the presence of exocrine pancreatic deficiency would necessitate the need for studying the role of routine supplementation of pancreatic enzyme capsules for patients post-operatively to prevent lipid malabsorption symptoms. Quality of life of patients with stomach cancer following surgery helps in prognosticating and counselling patients and relatives in the management of the disease. Quality of life assessment helps in understanding the patients' perception of the disease and its treatment impact in a subjective way.

AIMS AND OBJECTIVES

- To find the incidence of exocrine pancreatic insufficiency following gastrectomy, for gastric cancer.

- To assess the quality of life in patients undergoing gastric resection for malignancy.

REVIEW OF LITERATURE

Anatomy of Stomach:

During the fifth week of gestation, stomach begins as a dilation in the tubular embryonic foregut. It descends, rotates and further dilates by seventh week with a disproportionate elongation of greater curvature. Stomach connects the oesophagus to the duodenum and forms the most distensible part of gastrointestinal tract. The stomach is bounded superiorly by the diaphragm and laterally by the spleen. The most proximal part of stomach is the cardia which lies immediately distal to the physiologically competent lower oesophageal sphincter. Distally, the pylorus connected the distal stomach (antrum) to the first part of duodenum. The floppy and distensible fundus forms the superior most past of the stomach. Corpus or the body of the stomach is the largest portion of the stomach.

Blood Supply

The main blood supply of the stomach is from the coeliac artery. The left and the right gastric arteries run along the lesser curvature and left and right gastroepiploic arteries run along the greater curvature. In addition, proximal stomach is also supplied by the inferior phrenic arteries and short gastric arteries. The veins of the stomach usually parallel the arteries. The right gastric and left gastric (coronary) veins usually drain into the portal vein. The right gastroepiploic vein drains into the superior mesenteric vein and the left gastroepiploic veins drain into the splenic vein.

Lymphatic Drainage

The lymphatic drainage parallels the vasculature of the stomach and drains into four zones of lymph nodes. The upper gastric curvature drains through the superior gastric group into the left gastric and paracardial nodes. The antral segment on the lesser curvature drains through the suprapyloric group of nodes into the right suprapancreatic nodes. The greater curvature of stomach drains into the left gastroepiploic and splenic nodes through the pancreaticolienal group of nodes. All the four group of lymph nodes drain into the celiac nodes and then into the thoracic duct. The extensive submucosal plexus of lymphatics is responsible for microscopic evidence of malignant cells several centimetres from the location of gross disease.

Innervation

The parasympathetic via the vagus and sympathetic via the celiac plexus forms the extrinsic innervation of the stomach. The neurons in Auerbach's and Meissner's autonomic plexus forms the enteric or intrinsic nervous system of stomach.

Outline of Gastric Carcinoma

Epidemiology and Risk factors

The second-most common cancer among men and third-most among females in Asia and worldwide is stomach cancer. The symptoms and signs of gastric malignancy often present late and the disease would already be advanced stage. In gastric malignancy, 5-year survival is less than 30% in developed countries and around 20% in developing countries (1). One of the leading cause of cancer in south India is stomach cancer. Its incidence is decreasing globally. But on worldwide scale gastric cancer remains one of the most common causes of death due to cancer. Aetiology of stomach cancer includes *Helicobacter pylori* infection, diet and lifestyle, alcohol, tobacco and genetic susceptibility (2). About 8.6% of all cancers that occurred in 2002 were gastric cancer. The stomach cancer rates show significant geographical variation. High-risk areas include Japan, China, Eastern Europe and few countries in Latin America. Low-risk population is present among the white race in North America, India, Philippines, most countries in Africa, some Western European countries and Australia.(1) The number of new gastric cancer cases in 2001 was calculated to be approximately 35,675 (*n*= 11,890 in women; 23,785 in men).(3) These incidence rate differences can be accredited to multiple factors like differences in diet and cultural habits, and *Helicobacter pylori* infection.

Clinical presentation of Gastric carcinoma

The symptoms of gastric cancer are usually vague and non-specific, with patients often presenting at an advanced stage. The common presenting complaints include dyspepsia**,** dysphagia, nausea**,** vomiting, melena, and hematemesis. Non-specific cancer symptoms (anorexia, weight loss, or anaemia) are indicators of late stage disease. On examination, clinical signs are usually completely absent, especially in the early stages. In advanced disease, examination findings include evidence of jaundice, anaemia or hepatomegaly (indicating likely metastases to the liver), Troisier's sign, or a palpable epigastric mass.

Staging

The most recent staging guidelines is 8th Edition of the AJCC Gastric Cancer Staging System(4,5)

T category

Table 1 T Category AJCC Gastric Cancer Staging System

TX	Primary tumour could not be assessed
T0	No evidence of primary tumour
Tis	Carcinoma in situ: intraepithelial tumour without invasion of the lamina propria
T1	Tumour invades lamina propria, muscularis mucosae, or submucosa
T1a	Tumour invades lamina propria or muscularis mucosae

T1b	Tumour invades submucosa
T2	Tumour invades muscularis propria
T3	Tumour penetrates subserosal connective tissue without invasion of visceral peritoneum or adjacent structures. T3 tumours also include those extending into the gastrocolic or gastrohepatic ligaments, or into the greater or lesser omentum, without perforation of the visceral peritoneum covering these structures
T4	Tumour invades serosa (visceral peritoneum) or adjacent structures
T4a	Tumour invades serosa (visceral peritoneum)
T4b	Tumour invades adjacent structures such as spleen, transverse colon, liver, diaphragm, pancreas, abdominal wall, adrenal gland, kidney, small intestine, and retroperitoneum

N category

Table 2 N Category AJCC Gastric Cancer Staging System

NX	Regional lymph node(s) cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in 1 to 2 regional lymph nodes
N2	Metastasis in 3 to 6 regional lymph nodes
N3	Metastasis in 7 or more regional lymph nodes
N3a	Metastasis in 7 – 15 regional lymph nodes
N3b	Metastasis in 16 or more regional lymph nodes

M category

M0 No distant metastasis

M1 Distant metastasis

Clinical staging

Stage 0:	Tis	N0	M0
Stage I:	T1-2	N0	M0
Stage IIA:	T1-2	N1-3	M0
Stage IIB:	T3-4a	N0	M0
Stage III:	T3-4a	N1-3	M0
Stage IVA:	T4b	N1-3	M0
Stage IVB:	any T	any N	M1

Pathologic staging

Stage 0:	Tis	N0	M0
Stage IA:	T1	N0	M0
Stage IB:	T1	N1	M0
	T2	N0	M0
Stage IIA:	T1	N2	M0
	T2	N1	M0
	T3	N0	M0
Stage IIB:	T1	N3a	M0
	T2	N2	M0
	T3	N1	M0
	T4a	N0	M0
Stage IIIA:	T2	N3a	M0
	T3	N2	M0
	T4a	N1-2	M0

	T4b	N0	M0
Stage IIIB:	T1-2	N3b	M0
	T3-4a	N3a	M0
	T4b	N1-2	M0
Stage IIIC:	T3-4a	N3b	M0
	T4b	N3a-3b	M0
Stage IV:	any T	any N	M1

Pathologic staging following neoadjuvant therapy

Stage I:	T1-2	N0	M0
	T1	N1	M0
Stage II:	T3-4a	N0	M0
	T2-3	N1	M0
	T1-2	N2	M0
	T1	N3	M0
Stage III:	T4b	N0	M0
	T4a-4b	N1	M0
	T3, 4a, 4b	N2	M0
	T2, 3, 4a, 4b	N3	M0
Stage IV:	any T	any N	M1

- **Regional lymph nodes**

  Greater curvature, greater omental, lesser curvature, lesser omental, right and left paracardial (cardioesophageal), suprapyloric, gastroduodenal, infrapyloric, gastroepiploic, left gastric artery, celiac artery, common hepatic artery, hepatoduodenal, portal, splenic artery, and splenic hilum nodes

- **Non-regional (distant) lymph nodes**

  Retropancreatic, pancreaticoduodenal, peripancreatic, superior mesenteric, middle colic, para-aortic, retroperitoneal, others

Lymph Node Stations

Table 3 Lymph Node Stations of Stomach

Station Number	Lymph Node
1	Right cardiac nodes
2	Left cardiac nodes
3	Nodes along present the lesser curvature
4	Nodes along present the greater curvature
5	Suprapyloric nodes
6	Infrapyloric nodes
7	Nodes present along the left gastric artery
8	Nodes present along the common hepatic artery
9	Nodes present around the coeliac axis

10	Nodes seen at the splenic hilum
11	Nodes present along the splenic artery
12	Nodes present in the hepatoduodenal ligament
13	Nodes at the posterior aspect of the head of pancreas
14	Nodes present at the root of the mesentery
15	Nodes present in the mesocolon of the transverse colon
16	Para-aortic lymph nodes

LYMPH NODE STATIONS

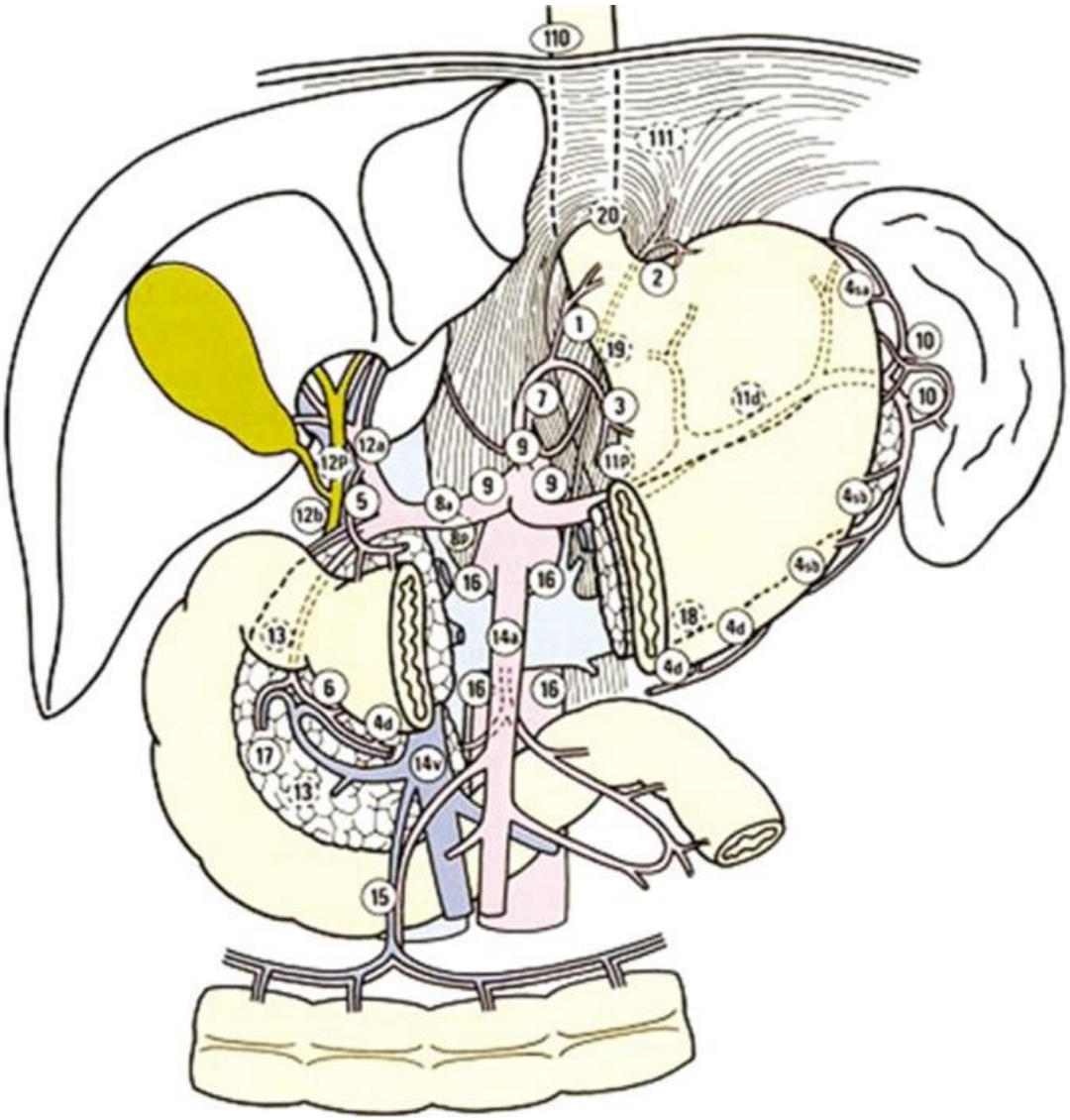


Figure 1 Numbering and location of lymph node stations

Reproduced from "Gastric Cancer: current status of lymph node dissection"., World J Gastroenterol 2016 March 14; 22(10):2875 - 2893(6)

Management of Gastric carcinoma

Surgical resection of tumour with adequate margins and adequate lymphadenectomy gives the brightest chance of survival for patients with gastric cancer. Total or subtotal gastrectomy are the primary surgical options available. Endoscopic management is a treatment option in case of early disease.

Theodor Billroth performed the first successful partial or subtotal gastrectomy in 1881. End to end gastroduodenal anastomosis formed the reconstruction. This success was attained only thorough research and studies on the anatomy of the stomach and its physiology. It involved multiple rehearsals on animal models. This surgery had been called as the Billroth I gastrectomy. Woelfler – a pupil of Billroth- in 1881 performed first successful gastro-jejunal anastomosis on a patient with an unresectable pyloric region carcinoma. Woelfler performed the first 'anastomosis-en-Y' in 1883 to prevent kinking of the jejunal loop that led to death from persistent biliary vomiting in few cases. This operative method was popularised by Roux of Lausanne and was called Roux en Y anastomosis hence. The first subtotal gastrectomy with gastrojejunostomy was done at Billroth's clinic by Von Hacker in 1885, on a debilitated patient who had a large, but mobile carcinoma of the pylorus. It was performed as a staged procedure. A loop of jejunum was first anastomosed to the stomach, proximal to the growth. Once the anastomosis began to function, the second operation comprising a partial gastrectomy was carried out with closure of the gastric and duodenal stumps. This procedure was named as the Billroth II partial gastrectomy.

In the following years, multiple modifications were applied to the described procedures and identification of pitfalls and complications of each type. In 1897, Schlatter performed the first successful total gastrectomy with an oesophago-jejunal anastomosis. By 19th century, gastrectomies became outspread for the management of stomach cancer. As days progressed, many surgeons became proficient with the operation and eventually fell mortality rates associated with the procedure.

Neoadjuvant therapy and adjuvant therapy would include chemotherapy and radiotherapy as indicated based on tumour pathology, stage of the disease, histopathology of resection specimen and patient health status. Efforts to improve treatment results beyond those obtained with surgery alone have included adjuvant (postoperative) and neoadjuvant (preoperative) strategies. The positive impact of such therapies on survival in patients with resected gastric cancer has become clearer over time, although there is no consensus as to the best approach.

Gastrectomy and reconstruction methods

Gastrectomy is defined as the surgical procedure which involves removal of all or part of the stomach. The two most common types of gastrectomy are subtotal gastrectomy and total gastrectomy. In total gastrectomy, the whole stomach is removed and in partial gastrectomy, the lower part of the stomach is removed. The location of the tumour decides the extent of gastrectomy when done for a curative intend. (7) After a distal stomach resection, the continuity of the digestive tract can be re-established by either

Billroth I (gastro duodenal anastomosis), Billroth II (gastrojejunal anastomosis) or a Roux-en-Y gastrojejunostomy. When gastric resection is done for malignancy, the commonest type of reconstruction here in our institute is by the Roux en Y technique. (8). This reconstruction alters the normal passage of food through the duodenum and creates an alternative path.

Reconstruction methods following gastrectomy

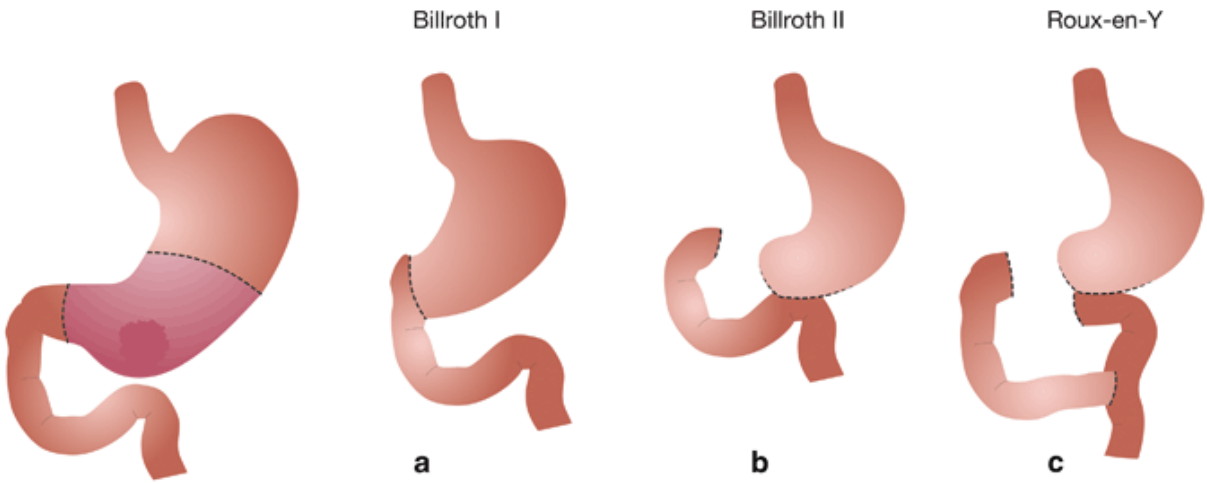


Figure 2 Gastrectomy Reconstruction Methods

Reproduced from Gastric cancer, June 2015 (9)

Functional Anatomy of Pancreas

Pancreas functions to synthesize and secrete digestive enzymes into the gastrointestinal tract and also synthesize and secrete hormones into the blood which in turn controls the energy storage and metabolism in the body. Exocrine pancreas comprises more than 95% pancreatic mass which includes acinar and duct cells with associated connective tissue, vessels, and nerves. This part of pancreas synthesizes and secretes digestive enzymes into the duodenum. Islets that make up 1-2 % of pancreatic mass synthesizes and secrete insulin, glucagon, somatostatin and pancreatic polypeptide into the blood.

In the C loop of the duodenum lies the head of the pancreas. Near the hilum of the spleen lies the tail of pancreas. Lying posterior to the distal portion of the stomach between the tail and the neck is the body of the pancreas. The pancreas is supplied by the pancreatic branches of the splenic artery. The head is also supplied by the branches of gastroduodenal and superior mesenteric artery. Most of the arteries supplying the pancreas are accompanied by veins which drain into the portal and splenic veins. The superior mesenteric vein joins the splenic vein to form the portal vein.

Clinical features of malabsorption in patients following gastrectomy

Steatorrhea is defined as frothy, foul smelling, buoyant stools. Steatorrhea, abdominal discomfort, weight loss and abdominal bloating are the common presenting complaints in cases of fat malabsorption. Carbohydrate and protein digestion are sustained at normal physiologic levels even in cases of significant exocrine pancreatic insufficiency. But, once exocrine pancreatic insufficiency progresses, fat malabsorption becomes the predominant issue and causes the clinical symptoms of lipid malabsorption and also cause nutritional deficiencies. Symptoms such as diarrhoea, steatorrhea, flatulence, loss of appetite, and increased bowel movements occurring most often in combination with each other may finally result in malnutrition and weight loss(10,11). Several hypotheses have been proposed to explain gastrointestinal symptoms following gastric resection, such as bacterial colonization of the duodenum, low-calorie intake due to changed eating habits, pancreatic insufficiency due to a loss of stimulation of the pancreas, and a rapid upper intestinal transit time(11,12). Frequently observed symptoms such as diarrhoea and steatorrhea have all been described in relation to pancreatic insufficiency(13). Loss of gastric pancreatic innervation and the loss of release of hormones like cholecystokinin are hypothesized to affect the pancreatic function. Whether these theories, solely or in combination, may attribute to a decreased exocrine function of the pancreas is yet to be determined(14)

As stated, many patients suffer from gastrointestinal symptoms. It is unclear how many patients are affected by exocrine pancreatic insufficiency after gastrectomy and whether these patients could benefit from supplementary therapy.

Malnutrition is a consequence of abnormal fat digestion. This in turn leads to malabsorption of fat-soluble vitamins. Also seen are decreased circulating lipoproteins and decreased micronutrients (15–17). Issues with mixing of digestive enzymes or problems with digestive mediators cause problems with digestion. This includes patients post gastric resection and patients with insufficiency of intestinal enzymes or pancreatic enzymes, or bile salts(18).

Exocrine Pancreatic Insufficiency

Exocrine Pancreatic Insufficiency is defined as decrease in pancreatic enzyme activity in the lumen of intestine to levels below the threshold needed for normal digestion. This problem is seen usually in resections of stomach and pancreas. Insufficient enzyme production, insufficient enzyme activation or disturbed enzyme deactivation causes the inadequate pancreatic enzyme activity causing this problem. Fundus relaxation, antral motility and the pylorus motor activity regulate the gastric emptying of nutrients. These functions are tightly regulated by antro-fundic reflexes (fundus relaxation secondary to the presence of nutrients in the gastric antrum) and duodenogastric reflexes. Post-prandial pancreatic secretion is first neurally stimulated by fundus relaxation, which triggers a vagal reflex (neurally mediated post-prandial stimulation of exocrine pancreatic secretion). Thereafter, the release of cholecystokinin (CCK) in response to

the nutrient-stimulated duodenal secretion of CCK-releasing peptide represents the major hormone-mediated post-prandial stimulation of exocrine pancreatic secretion. In gastrectomy patients, the following changes occur which can cause a change in pancreatic secretion

(i) Disturbance of fundus relaxation caused by the disappearance of antro-fundic and duodeno-fundic reflexes;

(ii) Absence of neurally stimulated pancreatic secretion caused by the lack of fundus relaxation;

(iii) Reduction in CCK- mediated stimulation of pancreatic secretion secondary to duodenal bypass;

(iv) Large and hard-to-digest nutrient particles reaching the jejunal lumen because of resection of the distal stomach;

(v) Asynchrony between the gastric emptying of nutrients and bilio-pancreatic secretion as a result of anatomical reconstruction(19).

Further, since vagotomy is inherent in gastrectomy, any coincident denervation of the pancreas may alter its response to food after operation.

In 1996, Friess et al (20) demonstrated that 100% of patients develop severe primary exocrine pancreatic insufficiency three months after a total gastrectomy. Chymotrypsin and trypsin were the most severely deficient enzymes after gastric surgery, with a decreased production of up to 91% three months after surgery. Low levels of gastrin and postprandial pancreatic polypeptides, and high levels of cholecystokinin were also reported (20). Exocrine pancreatic insufficiency is reported in both total and partial gastrectomy. Büchler et al (21) demonstrated that the pancreolauryl test was

pathological in 47%- 64% of patients after Billroth-I surgery and in 64%-70% after Billroth-II surgery. On the contrary, Heptner et al (22) reported EPI after gastric resection in only 30% of patients, even if the pancreolauryl test was abnormal in 90% of these patients.

Exocrine pancreatic insufficiency as a cause for gastrointestinal symptoms post-gastrectomy was examined by 2 studies. Both prospective studies used the decrease in excretion of exocrine pancreatic enzymes such as chymotrypsin, lipase, and bicarbonate as a measure for exocrine pancreatic insufficiency; Gullo et al. (23) compared pancreatic secretion of patients who underwent gastrectomy with controls in contrast to Friess et al. (20) who measured pre- and postoperative pancreatic secretion in gastrectomy patients. Gullo et al. (23) found a mean decrease in bicarbonate, lipase, and chymotrypsin of 47.9, 38.7, and 24.2% in 12 patients respectively. A stimulation test with secretin and cerulein did not produce any additional increase. Eight out of 12 patients had a measured faecal fat excretion over 7 g/24 h. No significant correlation between faecal fat excretion and lipase excretion was found (23) . The stimulation test with secretin and cerulein resulted in the study of Friess et al.(20) in a mean decrease of 92% of bicarbonate ($p < 0.01$), 47% amylase ($p < 0.05$), and 91% chymotrypsin ($p < 0.01$) in 15 patients. The total amount of pancreatic secretion was after secretin and cerulein stimulation decreased with 76% ($p < 0.01$). Gastrectomy did not only influence the pancreatic enzyme output; gastrointestinal hormone blood levels were also altered. Gastrin levels were significantly reduced by 43%, and pancreatic polypeptide (PP) levels were decreased by 61%. Three months later, PP was still reduced by 42% in comparison to preoperative levels.

Pancreatic Enzyme Supplementation

There were two studies which were done specifically to assess the effects of enzyme supplementation on the gastro-intestinal symptoms in patients with exocrine pancreatic insufficiency following total gastrectomy (24,25) one of which was a randomized controlled trial and the other being a crossover trial. Armbrecht et al.(24) performed a double blind crossover study with a sample size of 15 patients in which every patient had a 7 day intervention period, followed by or preceded by a 7 day long placebo period. There was a statistically significant association between that the stool consistency and enzyme supplementation in patients after total gastrectomy ($p < 0.05$). Another parameter which was assessed was the median faecal fat excretion, in patients with high-degree steatorrhea reduced significantly from 643 to 501 mmol/72 h ($p < 0.05$). The degree to which the steatorrhea of the total group did not decline significantly after pancreatic enzyme supplement (Kreon) substitution. The 5 symptoms which were used to assess the quality of life – bloating, nausea, vomiting, dumping and pain – did not change in a significant manner. Brägelmann et al.(25) had done a prospective parallel, randomized, placebo-controlled, double blind trial on pancreatic enzyme supplementation after total gastrectomy on 52 patients. Similar symptoms as the previous study – dyspepsia, bloating, early satiety, reflux, and postprandial vomiting were assessed, which revealed that in the enzyme-treated group had a significant improvement in the quality of life ($p = 0.006$) in comparison with the placebo group,

In a study done Huddy et al. found that exocrine pancreatic insufficiency contributes to postoperative morbidity after an esophagectomy, and that these patients can potentially be benefitted from enzyme supplementation (26).

The exocrine pancreatic enzyme is individual dependent, therefore pancreatic insufficiency is a clinical diagnosis and the treatment is based on patient symptomatology as mentioned earlier (27).

The gold standard accepted worldwide is the 72-h faecal fat collection, expressed as the coefficient of fat absorption (13,28) which is a non-invasive method to assess pancreatic enzyme deficiency, the other method being using a upper gastrointestinal (GI) scopy to suck out duodenal secretions .Both these measurements are done to accurately correlate the amount of dysfunction of the pancreas to the effect of enzyme supplementation. There are multiple studies which state that a fall to 10% of the normal exocrine pancreatic secretions causes symptoms.

There have been much more recent randomised control studies in patients having chronic pancreatitis or following pancreatic surgery with documented exocrine pancreatic insufficiency, showing benefit following enzyme supplementation (29) .

Tests of pancreatic function

Pancreatic function tests are required to confirm the diagnosis of exocrine pancreatic insufficiency. Estimation of 72-hour stool fat level is a cumbersome process for the patient and required admission for testing. Tests of pancreatic exocrine function can be direct or indirect. Though direct pancreatic function tests are considered most sensitive diagnostic tests for exocrine pancreatic insufficiency, they are not easily available in India. Direct tests include involve stimulation of the pancreas by administration of hormonal secretagogues after which endoscopy is done and duodenal fluid is collected which is analysed to directly quantify pancreatic secretory content. The secretory content includes enzymes and bicarbonate. Major drawback of direct testing methods is the lack of expertise and poor patient tolerance. Also invasive tests such as endoscopy are not well tolerated by patients in the post-operative period. Available direct tests are the secretin stimulation test, the Lundh test meal, and measurement of serum or faecal enzymes. The secretin stimulation test requires duodenal intubation to collect duodenal fluid for assessment of bicarbonate concentrations. Indirect pancreatic exocrine function tests work by measuring the effect of pancreatic secretion on various enzymes or nutrients. Indirect tests measure the consequence of exocrine insufficiency (maldigestion). These include triglycerides labelled with carbon 14, cobalamin labelled with cobalt 57 and cobalt 58, faecal elastase 1, faecal chymotrypsin and serum trypsinogen. The indirect tests are simpler to do and appear to be comparable to the secretin test at detecting pancreatic exocrine insufficiency.

Stool Elastase – ELISA

Pancreatic elastase-1 is a specific human protease synthetized by the acinar cells. Pancreatic stool elastase is an enzyme linked immunosorbent assay (ELISA) for the quantitative determination of human pancreatic elastase in faeces as an aid in the diagnosis of the exocrine pancreatic function. Pancreatic elastase is a proteolytic enzyme exclusively produced in pancreas. This is a sensitive, specific, and relatively inexpensive non-invasive test. It is an accurate function test for patients with chronic pancreatitis confirmed by endoscopic retrograde cholangiopancreatography and computerized axial tomography. The enzyme stability is remarkably high during the intestinal passage and is even accumulated in a six-fold concentration in stool, compared to the concentration in the duodenal juice. This assay uses polyclonal antibodies that are specifically directed against defined peptide sequences of the human pancreatic elastase molecule. These sequences are species and organ specific. (30) For the assessment of pancreatic function, literature has showed that faecal pancreatic elastase suitable replacement to faecal fat analysis.(31) It shows higher sensitivity and specificity for exocrine pancreatic insufficiency than faecal chymotrypsin determination and is comparable to oral pancreatic function tests such as the pancreolauryl test(32) Faecal elastase test is unaffected by gastric resection.(33) Hence can be used in post-operative patients following gastrectomy.

Principles of the Assay Method

The Pancreatic Elastase ELISA (Enzyme Linked Immunosorbent Assay) from BIOSERV Diagnostics is a solid-phase enzyme-linked immunosorbent assay based on a double-sandwich technique for the quantitative determination of human pancreatic elastase in faeces. Two polyclonal antibodies are recognizing several different epitopes on defined species- and organ-specific human pancreatic elastase peptide sequences. BIOSERV Diagnostics is using polyclonal antibodies which recognize several different epitopes in parallel to reach a higher diagnostic sensitivity and specificity. The ELISA microplate is coated with antibodies directed against human pancreatic elastase binding the pancreatic elastase contained in the patient samples or in the standards, respectively. In the following step the second antibody, labelled with biotin, binds to the immobilized pancreatic elastase. To visualize the bound pancreatic elastase, the biotin binds in the following step to streptavidin labelled horseradish-peroxidase. The peroxidase then oxidizes the substrate TMB (3,3',5,5'- tetra methyl benzidine). The reaction will be stopped by addition of 0.25 mol/l H2SO4. The developed dye (oxidized TMB) can be measured photo metrically at 450 nm. A reference measurement using a reference filter at ≥ 550 nm wavelength is recommended but not mandatory.

Sample Type: Faeces.

Samples can be stored at different temperatures for the following time-spans: Environmental temperature up to 40 °C for up to five days,

Refrigerator temperature (2 °C – 8 °C) for up to one week and

freezer temperature (-18 °C – -20 °C) for up to one year.

For liquid stool sample either collect another sample with a more solid consistency or, if this is not possible, heat the watery stool sample in a water bath to 55 °C (131 °F), at which temperature the elastase does not denature and concentrate the sample until it reaches normal stool consistency.

Interpretative criteria:

< 100 µg elastase/g faeces = severe exocrine pancreatic insufficiency

100 - 200 µg elastase/g faeces = moderate exocrine pancreatic insufficiency

> 200 µg elastase/g faeces = normal exocrine pancreatic function

Assay Performance characteristics:(34)

With a cut off of 200 micrograms elastase 1/g stool the sensitivity was 63% for mild, 100% for moderate, 100% for severe, and 93% for all patients with exocrine pancreatic insufficiency, and specificity was 93%. Values for chymotrypsin were 64% (sensitivity) and 89% (specificity). Significant ($p<0.001$) correlations were found for faecal and duodenal elastase with duodenal lipase, amylase, trypsin, volume, and bicarbonate output(35). Individual day to day variations of faecal elastase 1 concentrations were very low.

Limitations of the Assay

- At temperatures higher than 40 °C (104 °F) the samples should be transported cooled or refrigerated.
- Watery faeces from patients with diarrhoea may lead to falsely low readings because of a dilution effect.

Quality of Life Assessment following Gastrectomy

Although the long-term survival of patients with gastric cancer has improved due to earlier diagnosis and advances in multimodality management, significant morbidity associated with gastric resection remains. Patients may suffer from a variety of symptoms including early satiety, loss of appetite, heartburn, dysphagia, nausea and vomiting. These symptoms have a profound impact on patients' health-related quality of life (QOL)(36). Quality of life tools are essential to find out about the subjective effect of disease and its management as felt by patients.(37) Quality of Life Assessment The EORTCQLQ-C30 is a reliable and validated measure of the quality of life of cancer patients in multicultural clinical research. The questionnaire is a cancer-specific, self-administered, structured questionnaire that contains 30 questions, 24 of which form nine multi-item scales representing various aspects, or dimensions, of QOL: one global scale, five functional scales (Physical, Role, Emotional, Cognitive and Social), and three symptom scales (Fatigue, Pain and Nausea). The remaining 6 items are mono-item scales describing relevant cancer oriented symptoms (dyspnoea, insomnia, appetite, constipation, diarrhoea, financial difficulties). The gastric cancer module (QLQ-STO22) is a supplement to the QLQ-C30 intended for patients at all disease stages undergoing surgical resection, palliative surgical intervention, endoscopic palliation or palliative chemotherapy. The QLQ-STO22 consists of 22 questions which evaluate five multi-item symptoms scales (dysphagia, eating restrictions, pain, reflux and anxiety), and four single item symptoms scales (dry mouth, body image, hair loss and taste loss). For Global QOL and the functional scales, a higher score indicates better QOL, with 100 being perfect. For symptom scales, a lower score indicates better QOL, with 0 being perfect or no symptoms reported(38,39). We were interested in the dysphagia, eating restrictions, pain, reflux symptoms and the overall quality of life among our patients in the semi structured questionnaire.

MATERIALS AND METHODS

Setting

This study was conducted in the Upper GI surgical unit, Department of General Surgery at Christian Medical College, Vellore. The study included patients undergoing gastric resection for gastric malignancy in the Upper GI surgical unit. This study methodology was approved by the Institutional review board on 7/1/2017 and recruitment started on 7/1/2017 and was completed on 30/9/2018.

The protocol followed for evaluation and management of patients with gastric adenocarcinoma were as follows. Patients present either to General Surgery OPD for evaluation of symptoms or as a referral from primary centres or present acutely to Accident and Emergency Services with features of gastric outlet obstruction or bleeding gastric cancer. After evaluation with necessary diagnostic investigations, each patient is discussed at Multidisciplinary tumour board meeting which involves consultants from departments of Radiology, Upper Gastrointestinal Surgery, Radiotherapy, Medical Oncology and Pathology, along with an Upper GI specialist nurse. Based on tumour staging, patient symptomatology, patient health and comorbid profile, a decision is made on neoadjuvant therapy or upfront surgery.

Patients fulfilling the criteria for recruitment in the study were consented and included in the study. Patients were recruited in General Surgery OPD before admission for surgery. They were followed up in the ward during surgery and were reviewed back in General Surgery OPD post-operatively after discharge.

Exocrine Pancreatic Insufficiency following Gastrectomy:

This was the prospective arm of the study. Continuous sampling of all patients undergoing gastrectomy for gastric cancer till sample size is reached in each group (subtotal and total gastrectomy). Pre-operative stool elastase was tested. At a follow up OPD visit any time after the patient starts taking a normal diet, post-operative stool elastase was tested.

Participants

Inclusion criteria:

Among the patients planned for gastrectomy, those fulfilling the below criteria were included in the study.

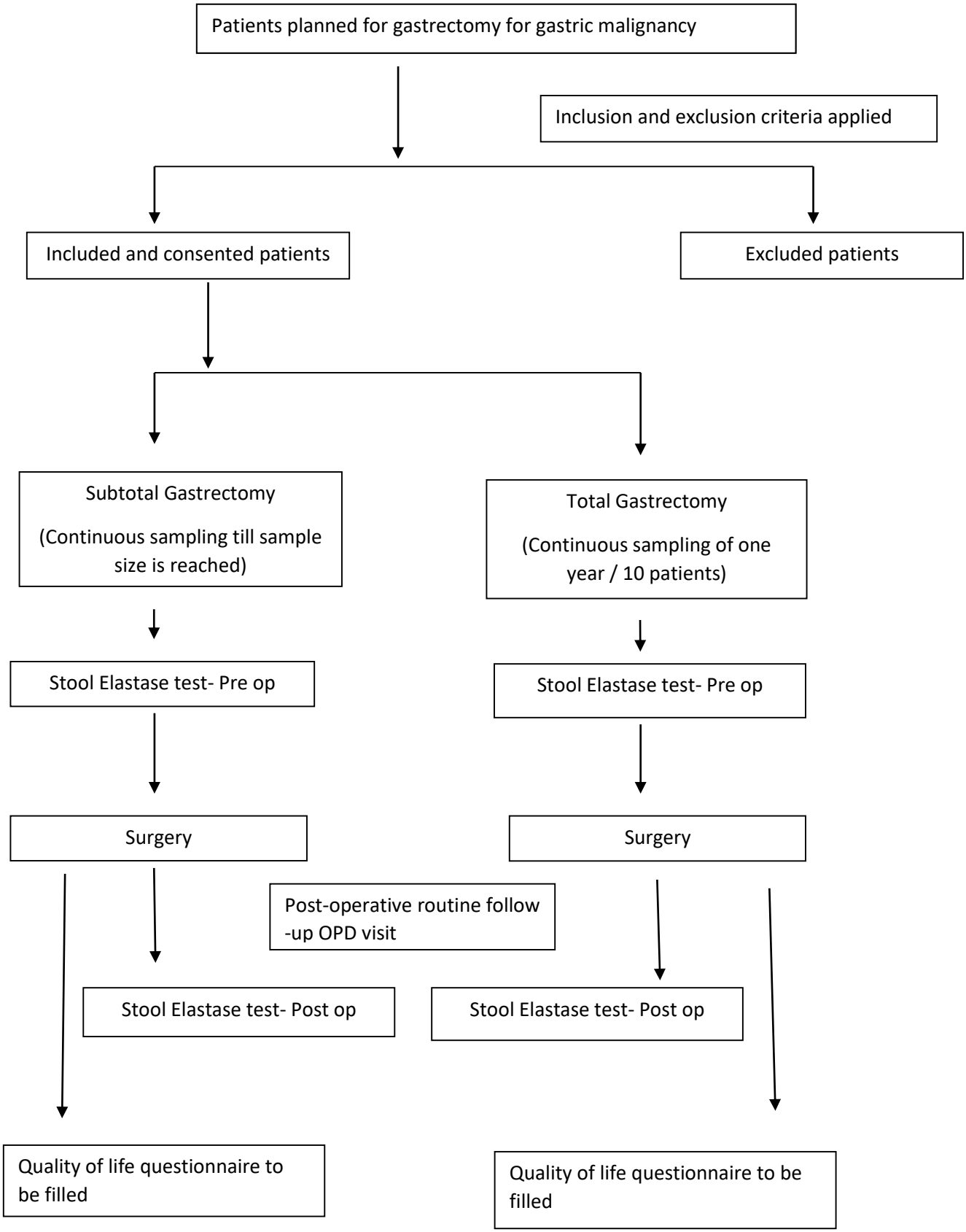
• Should undergo gastrectomy (total or subtotal) for gastric adenocarcinoma with Roux en Y reconstruction.

• Should be on normal diet at the time of postoperative stool elastase testing.

Exclusion criteria:

- History of diabetes
- Stool elastase value less than normal on preoperative analysis

Flowchart of Patient Recruitment



All patients who underwent gastrectomy for gastric adenocarcinoma in the past 4 years in Upper GI Surgery department would be consented and administered the quality of life questionnaire by principal investigator in OPD and/or by mail and/or email and/or phone

Quality of Life following resection for Gastric adenocarcinoma:

This analysis included both prospective and retrospective components. All patients who underwent gastrectomy for adenocarcinoma stomach during the study period in 2017 were assessed for quality of life during their postoperative period. Retrospective QOL analysis was performed on the patients who had undergone gastrectomy for adenocarcinoma stomach between the years 2013 and 2016. They were contacted when they presented to the OPD for review and/or through post and/or phone and/or email for administering quality of life questionnaire.

Data Sources/measurement:

All the variables in data collection sheet were obtained from the medical records of patients consented and recruited in the study. Clinical workstation was used to obtain the necessary clinical information and biochemical test results of the patient. Stool elastase testing was done in Wellcome Biochemistry laboratory in CMC Hospital, Vellore.

All the variables for quality of life assessment were obtained from the patient by a self-administered/ interviewer administered semi structured questionnaire from a validated questionnaire EORTC QLQ C30 and EORTC QLQ STO22. Internal validity was checked from the study. Consent for using the EORTC questionnaire was obtained from EORTC.

Sample size calculation

Sample size for exocrine pancreatic insufficiency was calculated for two groups (Sub-total and Total) Gastrectomy separately based on available literature.

Subtotal gastrectomy

Expected Proportion	0.697
Precision (%)	14
Desired confidence level (1- alpha) %	95
Required sample size	42

With reference to Langenbecks Arch Chir. 1985;367(21):41-50 ,EPI found among post gastrectomy patient with BII reconstruction was found to be 69.7, with a relative precision(20% of proportion) at 14% and a desired confidence interval at 95% we need to study 42 sub-total gastrectomy patients.

Total gastrectomy

With reference to AmJ Gastroenterol. 1996 Feb;91(20):341-7.,EPI found among post total gastrectomy patient was found to be 100%. The total number of total gastrectomy operations in a year is around 10 -12. Hence all the total gastrectomy patients in one year would be taken for finding out the prevalence of exocrine pancreas insufficiency following total gastrectomy.

Estimating single Proportion (Relative precision)

Assumptions

- The outcome variable measure should be binary (success/failure, alive/dead)
- p is probability of success in each trial; (1-p) is probability of failure
- The sampling distribution of the sample proportion (p) is approximated to normal.

Formula

$$n = \frac{\left(z^{2}_{1-\frac{\alpha}{2}} \right)(1 - p)p}{\xi^{2} p}$$

Where,

p : Expected proportion

ξ : Relative precision

$1-\alpha/2$: Desired Confidence level

Estimating single Proportion (Relative precision) Reference Lemeshow S, Hosmer DW, Klar J, Lwanga SK.Adequacy of Sample Size in Health Studies. John Wiley and Sons, 1990(40)

IRB and Ethics committee approval

This study protocol was reviewed and approved by the Institutional Review Board, Christian Medical College, Vellore on 7/1/2017.

Informed Consent

All patients included in the study were explained the objectives of the study and were supplied with information sheet containing the necessary information regarding the study. All the included patients signed a written consent for their participation in the study.

Data analysis and statistical methods

Collected data was entered using Epidata® 3.1. Data analysis was done using SPSS software (IBN Corporation®. Released 2015. IBN SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBN Corp.). Bibliography was managed used Zotero® (Centre at George Mason University). Descriptive statistics were reported using Mean +/- SD. Frequency and percentage were reported for categorical variables. Chi square/ Fisher's exact test were done to check the association between the categorical variables and the outcome variable. Student T test was used for comparing two continuous compare variables. P value <0.05 was considered as statistically significant. ANOVA (Analysis of variance) was used to compare three or more continuous variables.

RESULTS

Exocrine Pancreatic insufficiency following Gastrectomy

Recruitment details:

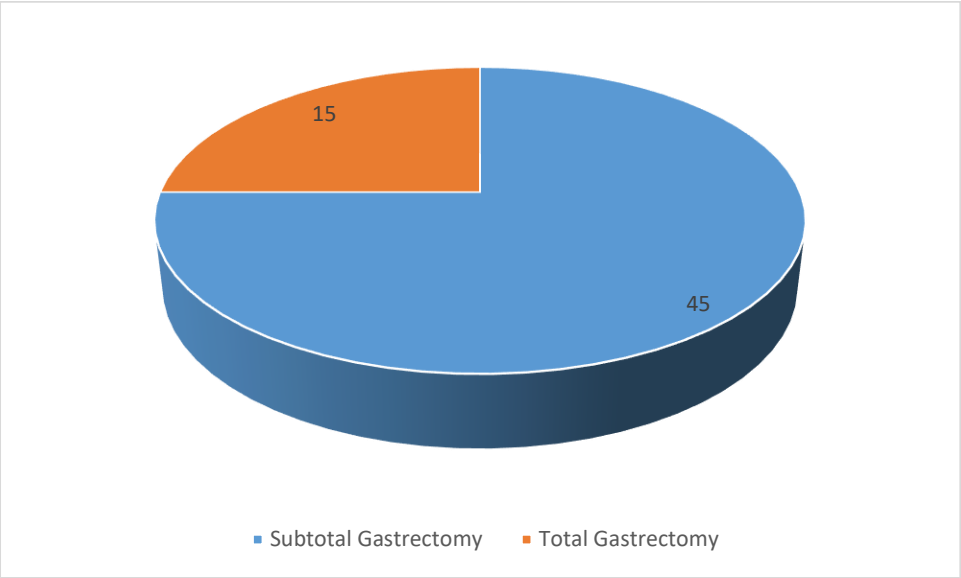


Figure 3 Case Recruitment Distribution

45 patients were recruited in the subtotal gastrectomy group and 15 patients were recruited in the total gastrectomy group.

SUB-TOTAL GASTRECTOMY

Number of patients recruited = 45

Age Distribution

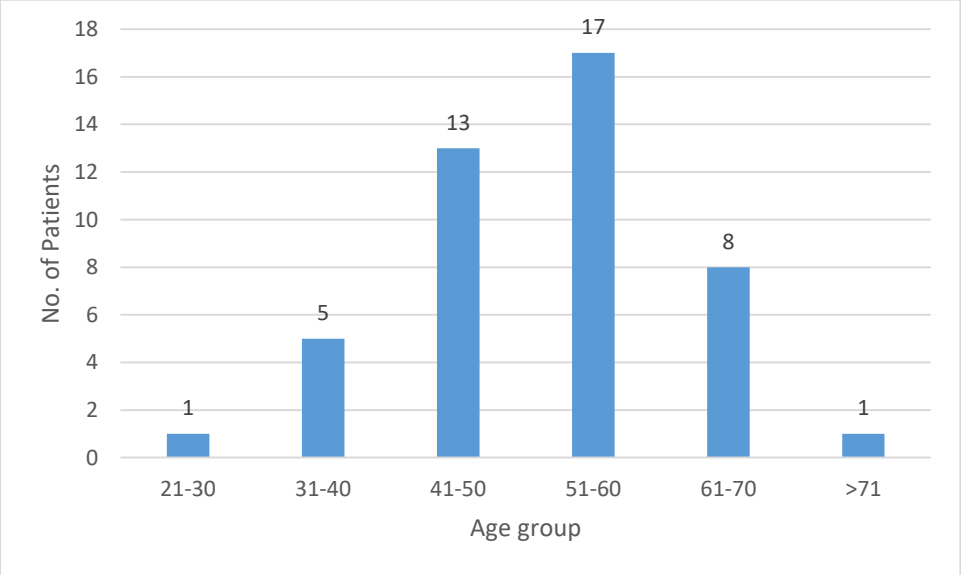


Figure 4 Age Distribution - Subtotal gastrectomy

Most patients were in the age group between 51 and 60. The mean age was 52. The lowest age seen in the group was 30 and the highest was 78.

Gender Distribution

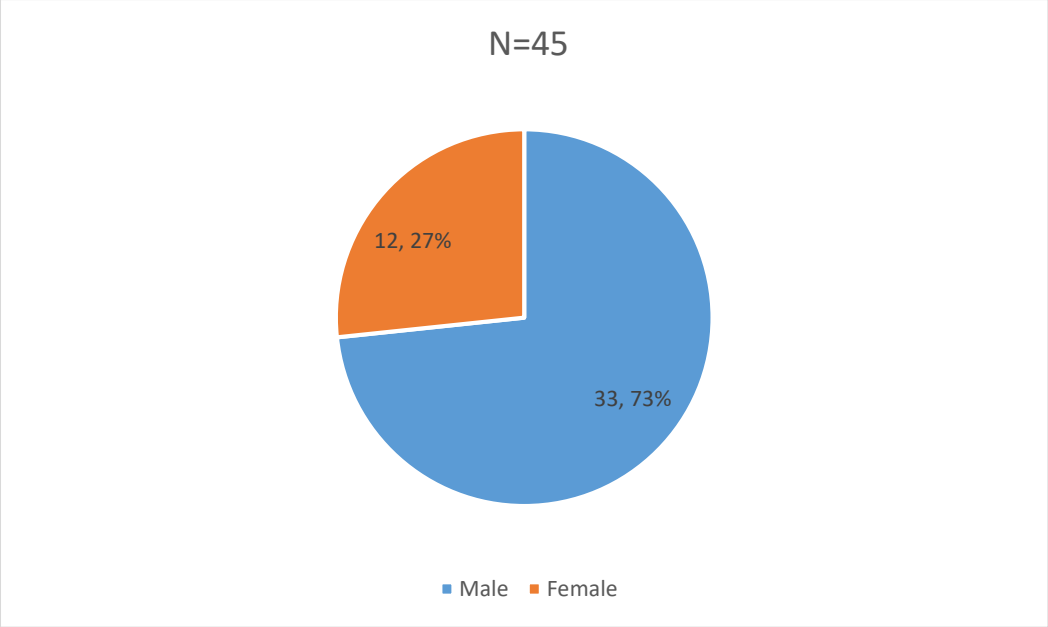


Figure 5 Gender Distribution Subtotal gastrectomy

Among the 45 patients included in the study who underwent sub-total gastrectomy, 33 were male and 12 were female.

Regional Distribution

Table 4 Regional Distribution Subtotal Gastrectomy

Locality	**Number of patients**	**Percentage**
Andhra Pradesh	3	6.6
Assam	2	4.4
Jharkhand	8	17.8
Orissa	1	2.2
Sikkim	1	2.2
Tamil Nadu	13	28.9
West Bengal	7	15.6
Bangladesh	9	20
Nepal	1	2.2
Total	**45**	**100**

Majority of the patients were from Tamil Nadu followed by patients from Bangladesh and then Jharkhand. There was 1 patient from Nepal also.

Method of Surgery

Table 5 Method of surgery Subtotal Gastrectomy

Method	**Number of patients**	**Percentage**
Laparoscopic	2	4.4
Open	43	95.6

Among the 45 patients, 43 underwent open subtotal gastrectomy and 2 patients underwent totally laparoscopic subtotal gastrectomy. There were no cases of laparoscopy assisted gastrectomy.

Resection Intent

Table 6 Resection Intent Subtotal Gastrectomy

Resection Intent	Number of patients	Percentage
Palliative	5	11.1
Curative	40	88.9

5 patients underwent palliative R2 resection. 40 patients underwent curative (R0 or R1) resection.

Lymphadenectomy

Table 7 Extent of lymphadenectomy Subtotal Gastrectomy

Lymphadenectomy	Number of patients	Percentage
D1	5	11.1
D1+	5	11.1
D2	35	77.8

5 patients underwent D1 resection, 5 patients underwent D1+ resection and 35 patients underwent D2 resection.

Type of anastomosis

Table 8 Anastomosis type Subtotal Gastrectomy

Anastomosis Type	Number of patients	Percentage
Hand sewn	36	80
Stapled	9	20

36 patients underwent hand-sewn gastrojejunal anastomosis. Rest 9 patients in the study underwent stapled anastomosis.

Number of patients who were diagnosed to have an anastomotic leak = 7 (n=45).

This included patients who had gastrojejunal anastomotic leak, jejunojejunal anastomotic leak and duodenal stump blow-out. The rate of anastomotic leak was 15.6 %

Number of patients who were re-operated for anastomotic leak = 6 (n=45). The reoperation rate among sub-total gastrectomy patients included in the study was 13.3 % There were no other causes of re-operation seen in this group of patients.

35 patients had upfront surgery for gastric adenocarcinoma. 10 patients had neoadjuvant chemotherapy. 27 patients had only adjuvant chemotherapy. 11 patients had adjuvant radiotherapy.

Comorbidities

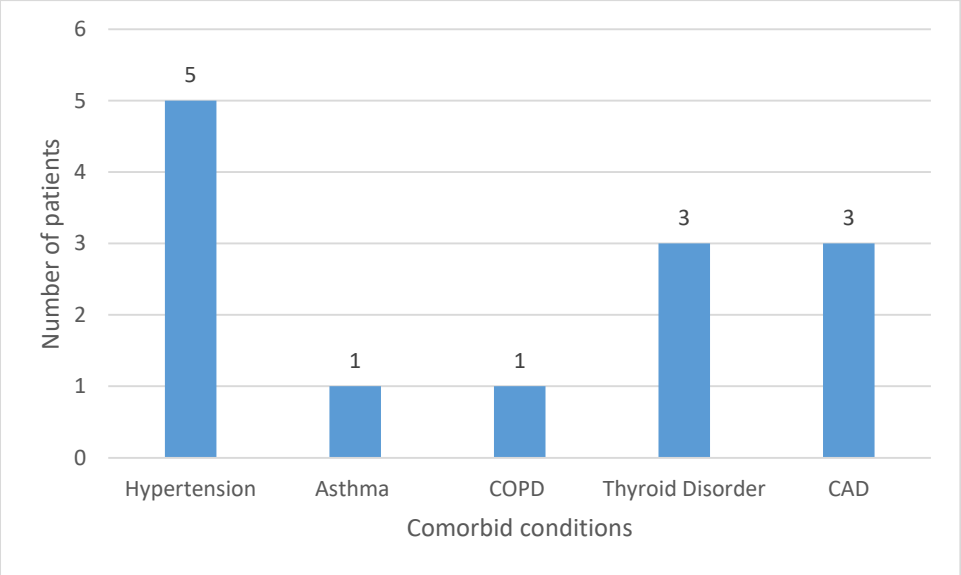


Figure 6 Distribution of Comorbidities Subtotal gastrectomy

Hypertension was the most common comorbidity seen in this group of patients included in the study. There were no diabetics in the study since diabetes was a part of exclusion criteria for the study.

Tumour Differentiation

Table 9 Tumour Differentiation Subtotal Gastrectomy

Tumour Differentiation	**Number of patients**	**Percentage**
Well-differentiated	0	0
Moderately differentiated	21	46.7
Poorly differentiated	24	53.3

24 patients in the study had poorly differentiated tumour and 21 had moderately differentiated tumour. There were no cases of well-differentiated tumour.

TNM Staging

Preoperative staging of the disease was considered for the study. The staging was based on radiological and pathological staging. In the case of upfront surgery, pathological grading of the disease was done. In patients who received neoadjuvant therapy, staging was done based on imaging done before initiation of neoadjuvant therapy.

T Stage

Table 10 T Stage Distribution Subtotal Gastrectomy

T Stage	Number of patients	Percentage
T1	2	4.4
T2	3	6.7
T3	20	44.4
T4	20	44.4

N Stage

Table 11 N Stage Distribution Subtotal Gastrectomy

N Stage	Number of patients	Percentage
N0	6	13.3
N1	13	28.9
N2	6	13.3
N3	20	44.5

Majority of the patients had N3 disease followed by N1 disease.

M Stage

Table 12 M Stage Distribution Subtotal Gastrectomy

M Stage	Number of patients	Percentage
M0	44	97.8
M1	1	2.2

Only one patient had metastatic disease in this group.

Exocrine pancreatic deficiency following Sub-total gastrectomy

Number of patients who completed the stool elastase analysis = 34

Analysis was considered completed when the recruited patients were followed up post-operatively in the Surgery OPD and underwent post-operative stool elastase testing. Thirty-four patients completed the analysis. However, 14 patients had less than normal stool elastase preoperatively and hence were excluded.

Using <200 µg elastase/g faeces as exocrine pancreatic deficiency cut-off:

Number of patients who were included for analysis (had normal stool elastase preoperatively) = 20.

Out of these 20 patients included, 8 patients were found to have abnormally low stool elastase post-operatively.

Incidence of exocrine pancreatic deficiency following sub-total gastrectomy using stool elastase = 40%

TOTAL GASTRECTOMY

Number of patients recruited = 15

Age Distribution

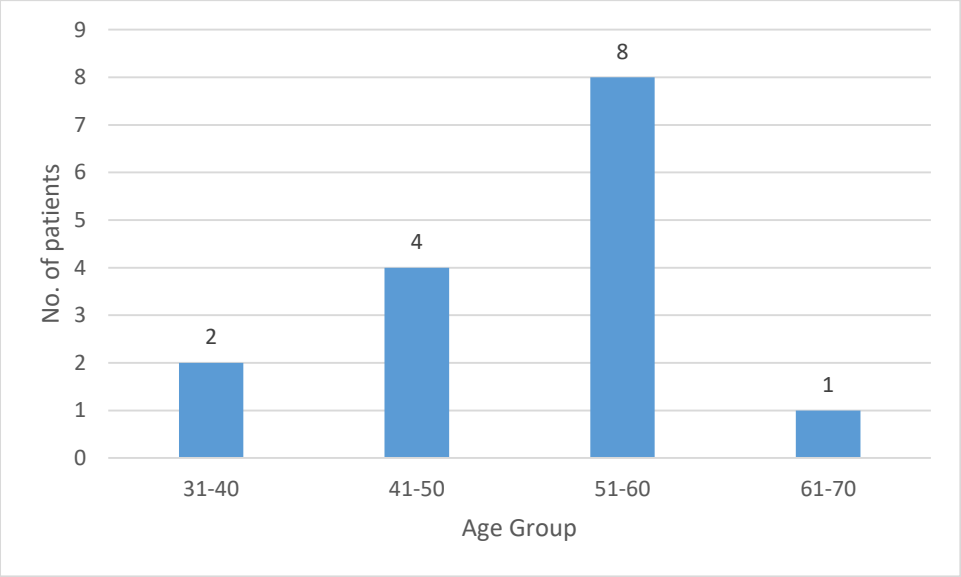


Figure 7 Age Distribution Total Gastrectomy

Most patients were in the age group between 51 and 60. The mean age was 51. The lowest age seen in the group was 32 and the highest was 62.

Gender Distribution

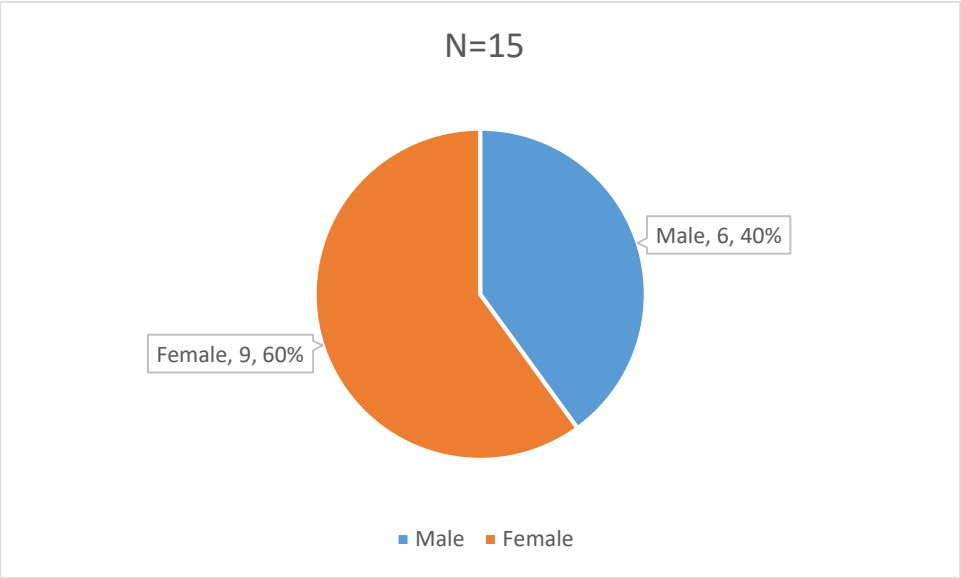


Figure 8 Gender Distribution Total Gastrectomy

Among the 15 patients included in the study who underwent total gastrectomy, 6 were male and 9 were female.

Regional Distribution

Table 13 Regional Distribution Total Gastrectomy

Locality	**Number of patients**	**Percentage**
Bihar	1	6.7
Chhattisgarh	1	6.7
Jharkhand	2	13.3
Mizoram	1	6.7
Tamil Nadu	2	13.4
West Bengal	3	20
Bangladesh	5	33.3
Total	**15**	**100**

Most patients were from Bangladesh followed by West Bengal and Tamil Nadu.

Method of Surgery

Table 14 Method of surgery Total Gastrectomy

Method	**Number of patients**	**Percentage**
Laparoscopic	3	20
Open	11	70.3
Laparoscopy assisted	1	6.7

Majority of patients (11 patients) underwent open gastrectomy. 3 patients underwent totally laparoscopic surgery and one patient underwent laparoscopy assisted surgery.

Resection Intent

Table 15 Resection Intent Total Gastrectomy

Resection Intent	Number of patients	Percentage
Palliative	1	6.7
Curative	14	93.3

1 patient underwent palliative R2 resection. 14 patients underwent curative (R0 or R1) resection.

Lymphadenectomy

Table 16 Extent of Lymphadenectomy Total Gastrectomy

Lymphadenectomy	Number of patients	Percentage
D1	1	6.7
D1+	2	13.3
D2	12	80

1 patient underwent D1 resection, 2 patients underwent D1+ resection and 12 patients underwent D2 resection.

Type of anastomosis

Table 17 Type of anastomosis Total Gastrectomy

Anastomosis Type	Number of patients	Percentage
Hand sewn	6	40
Stapled	9	60

6 patients underwent hand-sewn gastrojejunal anastomosis. Rest 9 patients in the study underwent stapled anastomosis.

Anastomotic leak was seen in 3 patients. The rate of anastomotic leak was 20 % Number of patients who were re-operated for anastomotic leak was 2 (n=15). The reoperation rate among total gastrectomy patients included in the study was 13.3 % There were no other causes of re-operation seen in this group of patients.

4 patients had upfront surgery for gastric adenocarcinoma. 11 patients had neoadjuvant chemotherapy. 3 patients had only adjuvant chemotherapy. 2 patients had adjuvant radiotherapy.

Comorbidities

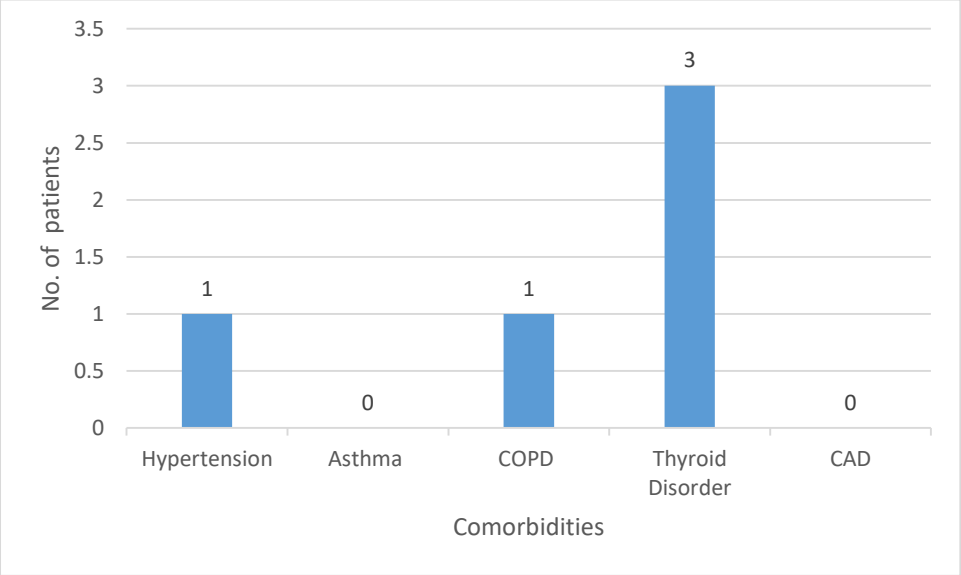


Figure 9 Distribution of comorbidities Total Gastrectomy

Most patients in this group had thyroid disorder. There were no diabetics in the study since diabetes was a part of exclusion criteria for the study.

Tumour Differentiation

Table 18 Tumour Differentiation Total Gastrectomy

Tumour Differentiation	**Number of patients**	**Percentage**
Well-differentiated	0	0
Moderately differentiated	2	13.3
Poorly differentiated	13	86.7

Majority of the patients (86.7 %) had poorly differentiated tumour and rest had moderately differentiated tumour. None had well-differentiated tumour.

T Stage

Table 19 T Stage Distribution Total Gastrectomy

T Stage	**Number of patients**	**Percentage**
T1	0	0
T2	0	0
T3	9	60
T4	6	40

All the patients had either T3 or T4 disease.

N Stage

Table 20 N Stage Distribution Total Gastrectomy

N Stage	Number of patients	Percentage
N0	5	33.3
N1	3	20
N2	4	26.7
N3	3	20

5 patients had N0 disease, 3 patients had N1 disease, 4 patients had N2 disease and 3 patients had N3 disease.

M Stage

Table 21 M Stage Distribution Total Gastrectomy

M Stage	Number of patients	Percentage
M0	15	100
M1	0	0

None of the patients in this group had metastatic disease.

Exocrine pancreatic deficiency following total gastrectomy

Number of patients who completed the stool elastase analysis = 10

Using <200 µg elastase/g faeces as exocrine pancreatic deficiency cut-off:

Number of patients who were included for analysis (had normal stool elastase preoperatively = 6

Out of these 6 patients included, only one patient was newly found to have abnormally low stool elastase postoperatively.

Incidence of exocrine pancreatic deficiency following total gastrectomy using <200 µg elastase/g faeces = 16.7%

Exocrine Pancreatic deficiency: Subtotal vs Total gastrectomy

Table 22 Exocrine Pancreatic Deficiency: Subtotal vs total gastrectomy

Surgery	Normal Elastase	Abnormal elastase	Pearson chi-square	p value
Subtotal gastrectomy	12 (60%)	8 (40%)	1.110	0.380
Total gastrectomy	5 (83.3%)	1 (16.7)		

There was no statistical difference between subtotal and total gastrectomy among patients who developed exocrine pancreatic deficiency following surgery.

Overall Exocrine pancreatic deficiency in any gastrectomy

Number of patients who had normal pre-operative stool elastase using <200 μg elastase/g faeces cut-off = 26

Number of patients who developed exocrine pancreatic deficiency following gastrectomy using <200 μg elastase/g faeces = 9

Incidence of exocrine pancreatic deficiency following gastrectomy using <200 μg elastase/g faeces = 34.6%

Timing of post-operative sampling

Sub-total Gastrectomy

Total Gastrectomy

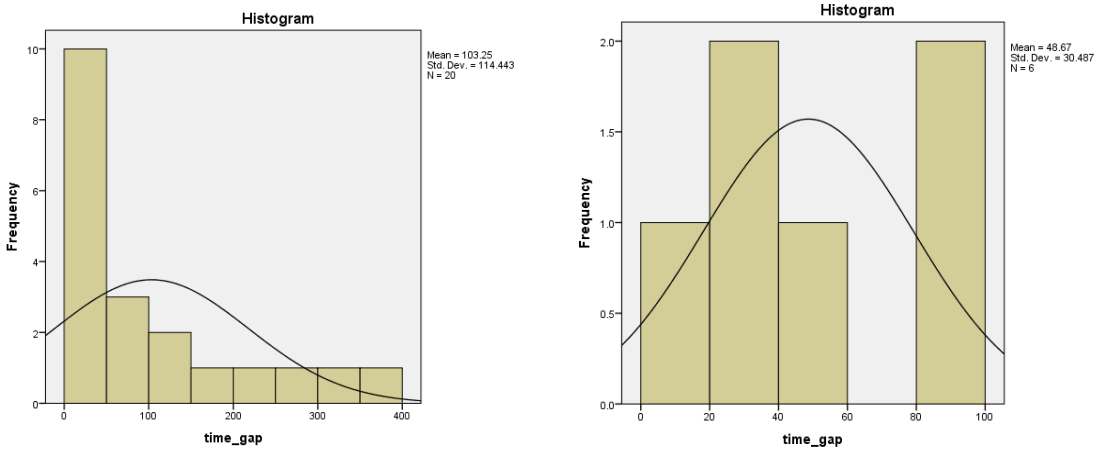


Figure 10 Timing of post-operative sampling Subtotal gastrectomy on Left and Total gastrectomy on Right

All Gastrectomy Patients in study

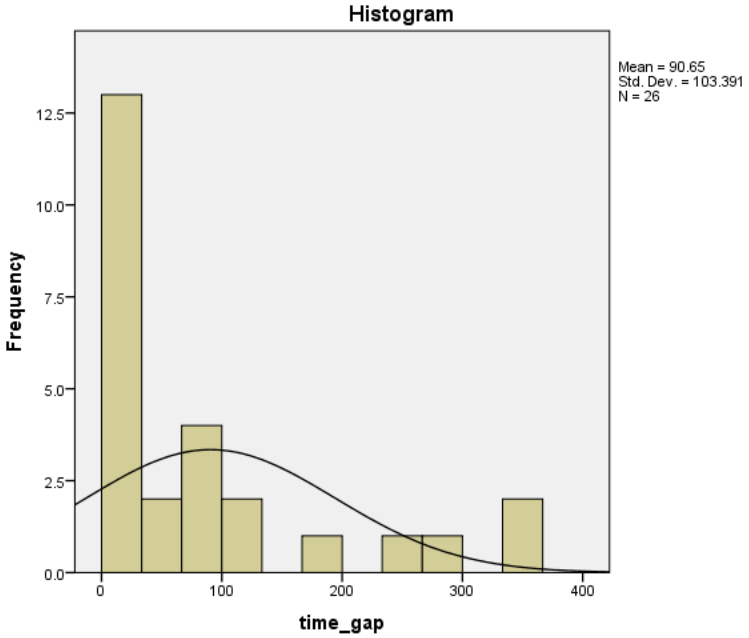


Figure 11 Timing of post-operative sampling All gastrectomy patients

Table 23 Timing of post-operative stool elastase testing

Time of stool elastase testing from surgery	Number of patients
<= 1 month	12
>1 month to < =3 months	3
>3 months to <=6 months	6
>6months	5
TOTAL	26

(This table includes only patients who completed the study and had a normal pre-operative stool elastase value.)

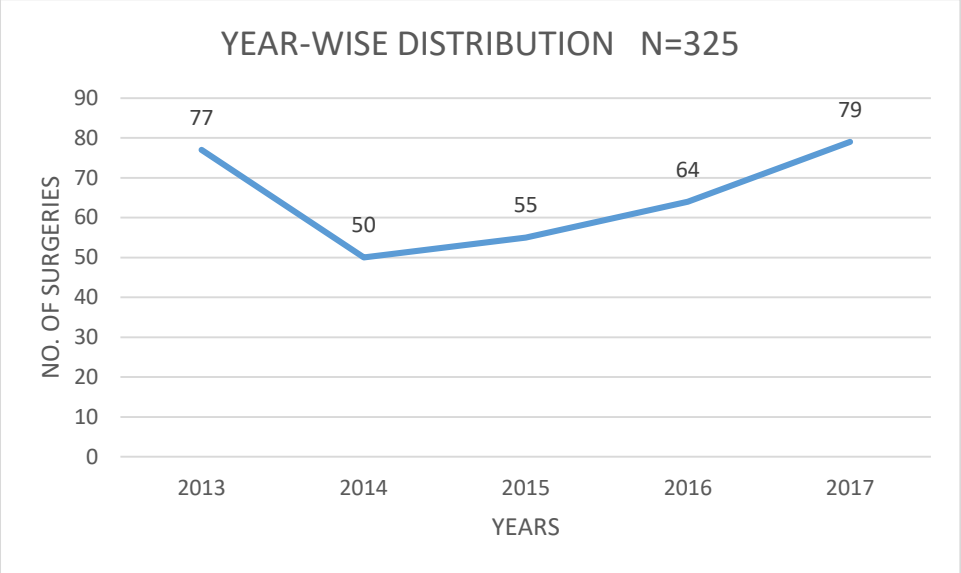
Independent sample T test was was used to assess if there was any statistical significance between the post-operative elastase result and the timing of post-operative sampling. There was no statistical significance between post-operative elastase results and timing of post-operative sampling. (p=0.737)

Independent sample T test was was used to assess if there was any statistical significance between the type of surgery(subtotal and total gastrectomy) and the timing of post-operative sampling. There was no statistical significance between subtotal and total gastrectomy. (p=0.737)

Quality of life assessment following Gastrectomy

Year-wise distribution

Table 24 Year-wise distribution of gastrectomy surgeries



79 patients underwent gastrectomy for adenocarcinoma stomach during the study period. (2017) Prior to 2017, 246 patients had undergone gastrectomy for adenocarcinoma stomach in the years 2013 to 2016. 77, 50, 55 and 64 patients underwent gastrectomy in 2013, 2014, 2015 and 2016 respectively.

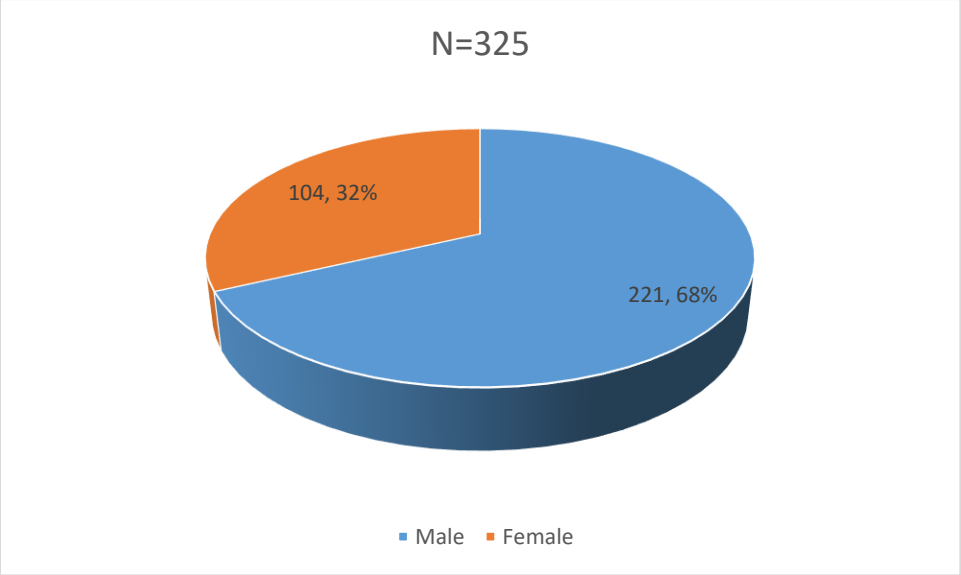
Table 25 Distribution of patients who were alive, dead or not reachable at the time of interview

Groups	Number of patients	Percentage
Alive and contactable	179	55.1
Died	110	33.8
Not reachable	36	11.1

Only 179 patients (55.1%) were confirmed to be alive at the time of interview and participated in the quality of life survey. 110 patients were reported to be died at the time of interview. 36 patients were lost to follow up.

Gender distribution

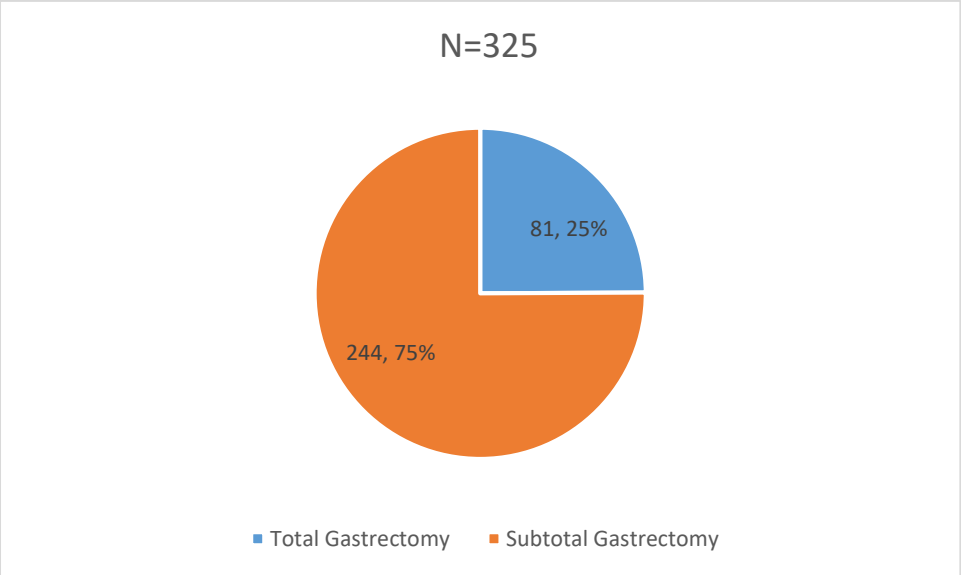
Table 26 Gender Distribution of Gastrectomy patients



There were 221 male patients which constituted 68 % of the patients and 104 female patients which constituted 32 % of the study population.

Gastrectomy type

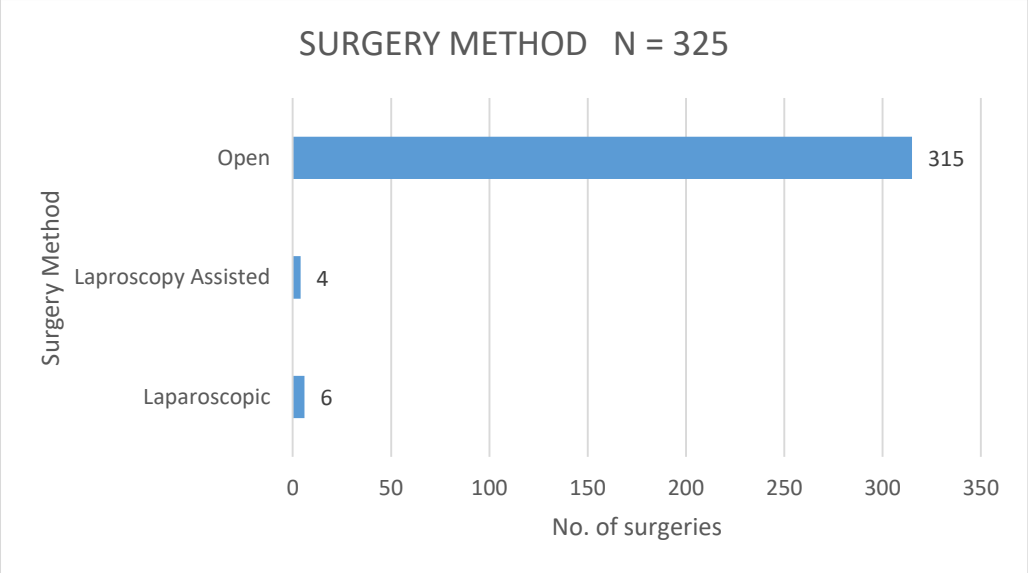
Table 27 Gastrectomy Type Distribution



81 patients underwent total gastrectomy and the rest 244 patients underwent subtotal gastrectomy.

Method of surgery

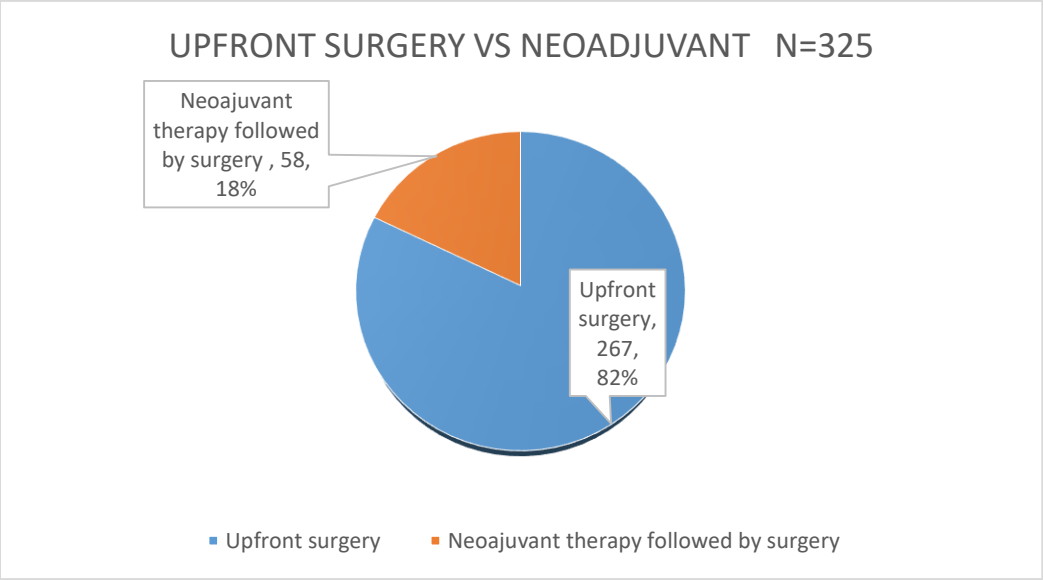
Table 28 Method of Surgery Distribution



315 patients underwent open gastrectomy. 4 patients underwent laparoscopy assisted gastrectomy and 6 patients underwent totally laparoscopic gastrectomy.

Upfront surgery

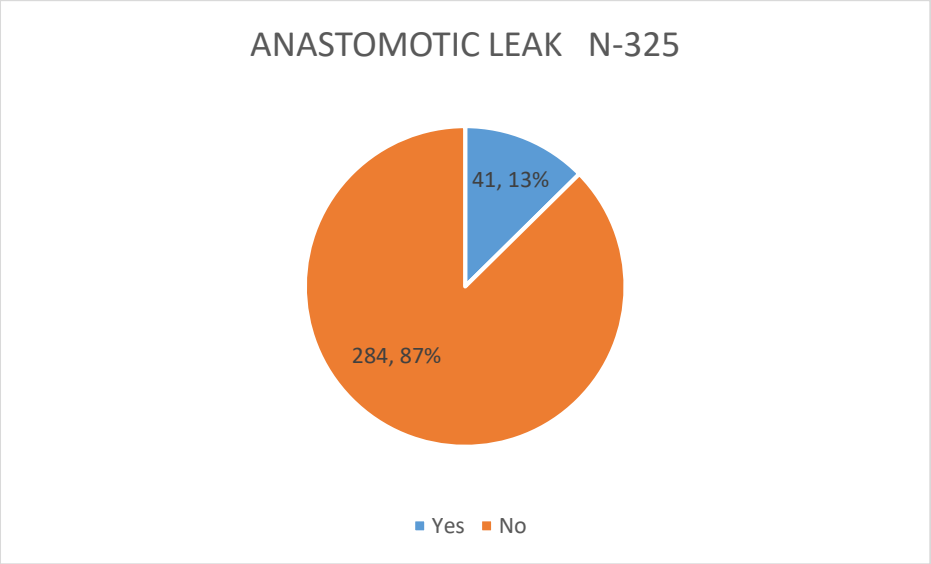
Table 29 Upfront Surgery vs Surgery after neoadjuvant therapy



Majority of the patients 82% underwent upfront surgery and remaining 18% underwent neoadjuvant therapy followed by adjuvant therapy.

Anastomotic leak

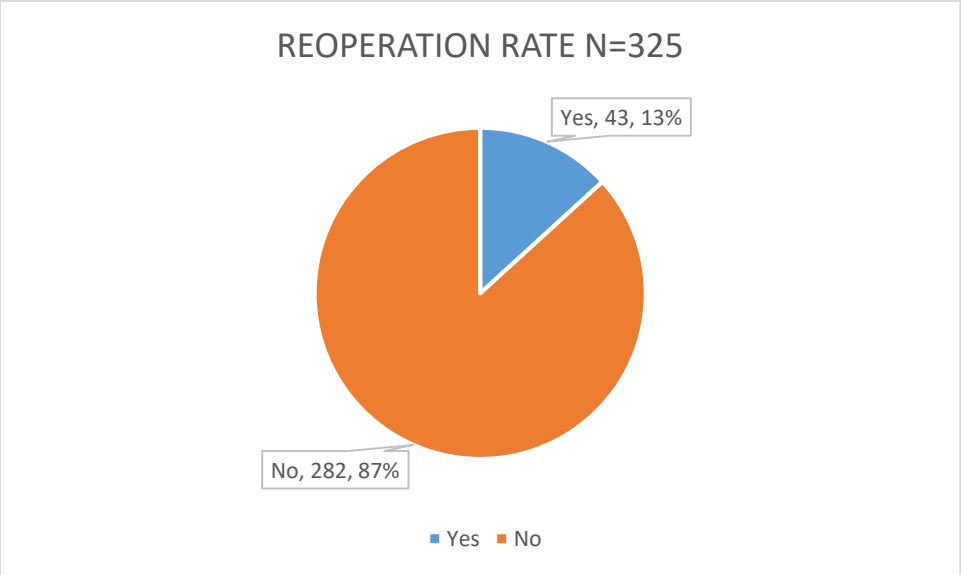
Table 30 Anastomotic Leak Distribution among gastrectomy patients



Anastomotic leak rate was 13 % among the gastrectomy patients.

Reoperation rate

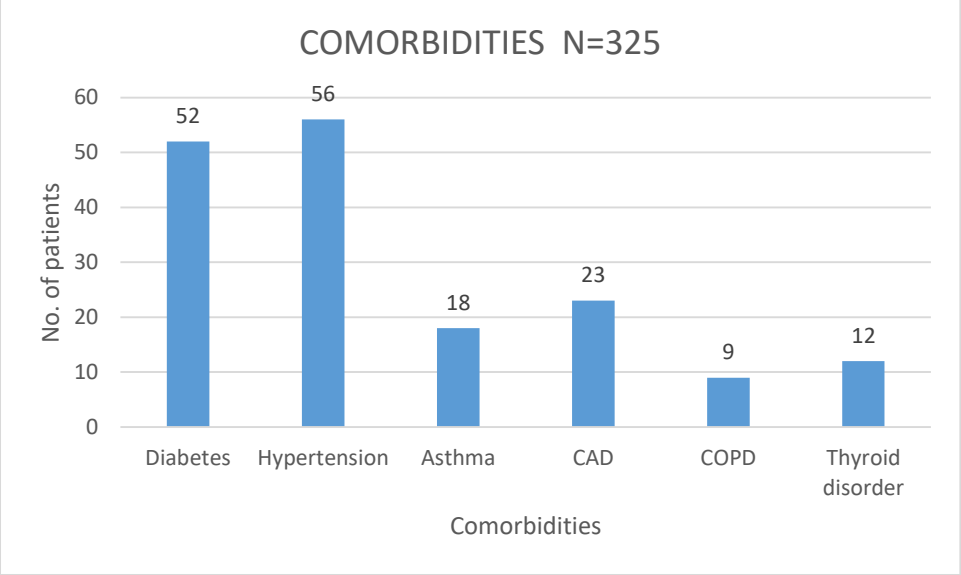
Table 31 Re-operation distribution among gastrectomy patients



The re-operation rate was 13 % among the gastrectomy patients.

Comorbidities

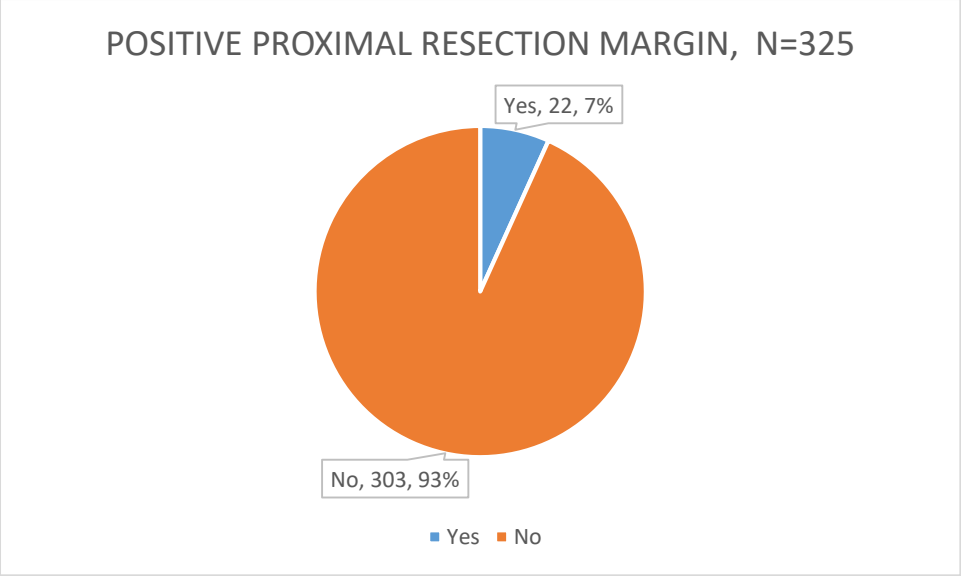
Table 32 Distribution of comorbidities among gastrectomy patients



Hypertension was the most common comorbidity followed by diabetes and coronary artery disease.

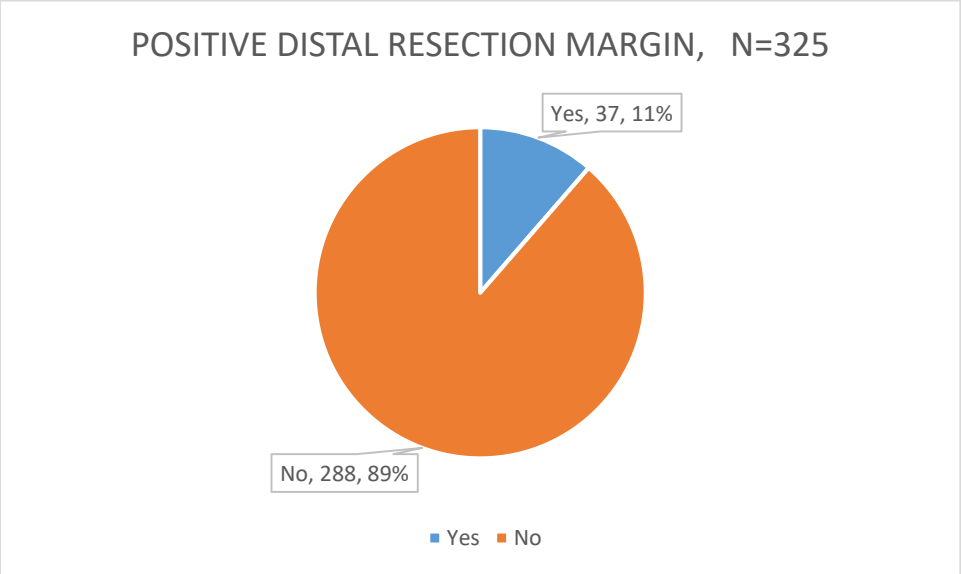
Proximal resection margin

Table 33 Positive Proximal Resection Margin Distribution



Distal resection margin

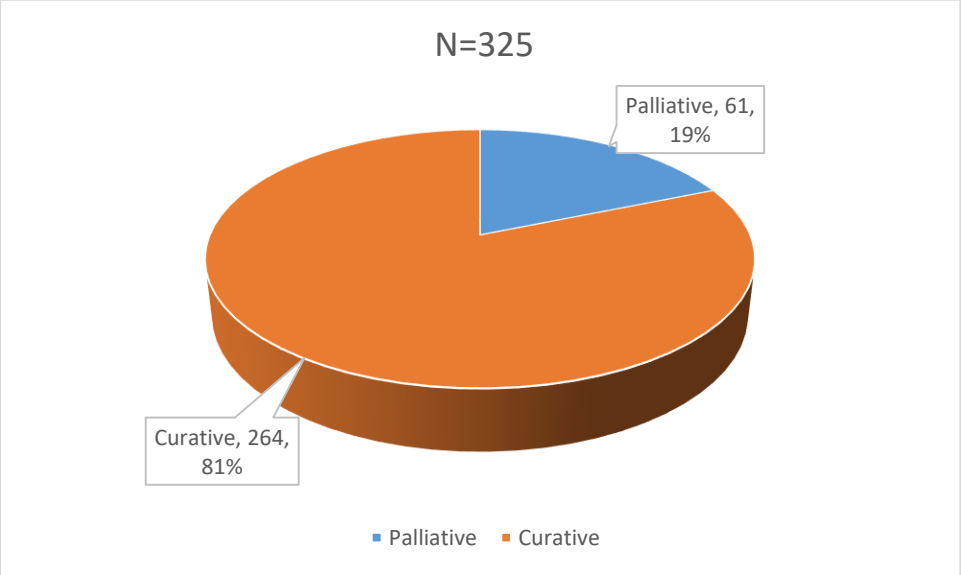
Table 34 Positive Distal Resection Margin Distribution



The proximal resection was positive in 7 % of the surgeries and the distal resection margin was positive in 11% of the surgeries.

Resection intent

Table 35 Resection Intent Distribution

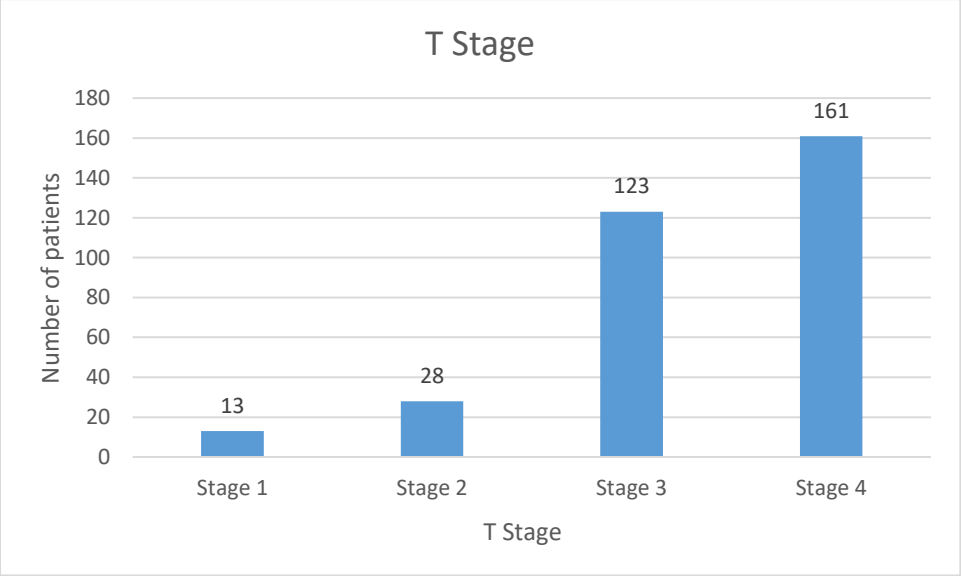


81 % of the patients underwent gastrectomy with curative intent. 19 % of the patients underwent palliative gastrectomy.

TNM Staging

T Stage

Table 36 T Stage Distribution among Gastrectomy patients



N Stage

Table 37 N Stage Distribution among Gastrectomy patients

N stage	No. of patients	Percentage
0	61	18.8
1	75	23.1
2	73	22.5
3	116	35.7

M Stage

Table 38 M Stage Distribution among Gastrectomy patients

M stage	No. of patients	Percentage
0	317	97.5
1	8	2.5

Symptom scales

Symptom scale assessed include dysphagia, pain, reflux symptoms and eating restrictions. Symptom score of more than or equal to 50 were considered as severe and symptom scores from 1 to 49 were classified as mild symptoms and symptom score of 0 was considered as no symptoms.

Dysphagia Symptom scale

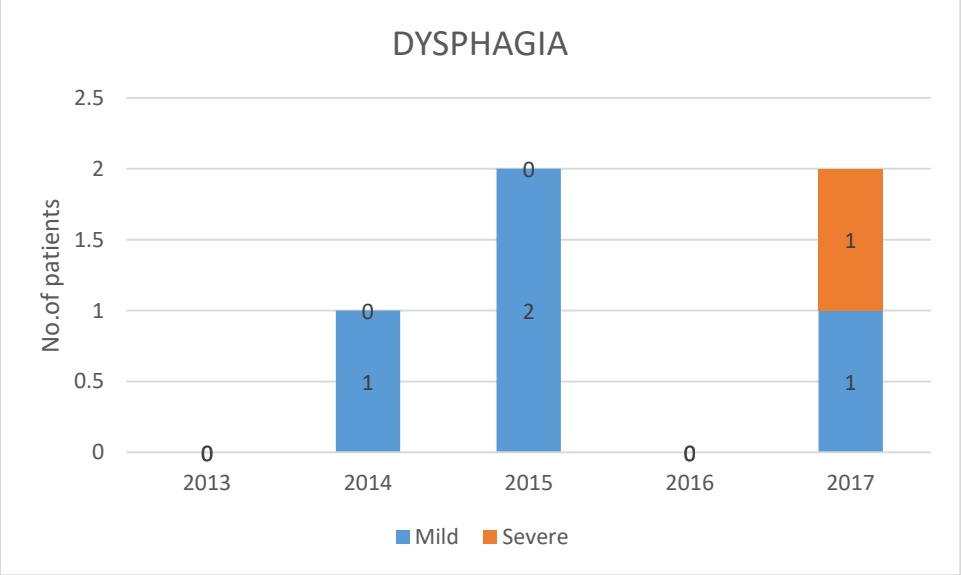


Figure 12 Dysphagia Symptom Score Distribution

Dysphagia was assessed using questions Q1 to Q3 on the Quality of life questionnaire. One patient in the 2017 group had severe symptoms of dysphagia. One patient had mild symptoms of dysphagia in 2014 and 2017. Two patients had mild symptoms of dysphagia in 2015. No patient had severe symptoms of dysphagia in the years 2013, 2014, 2015 and 2016.

Pain Symptom scale

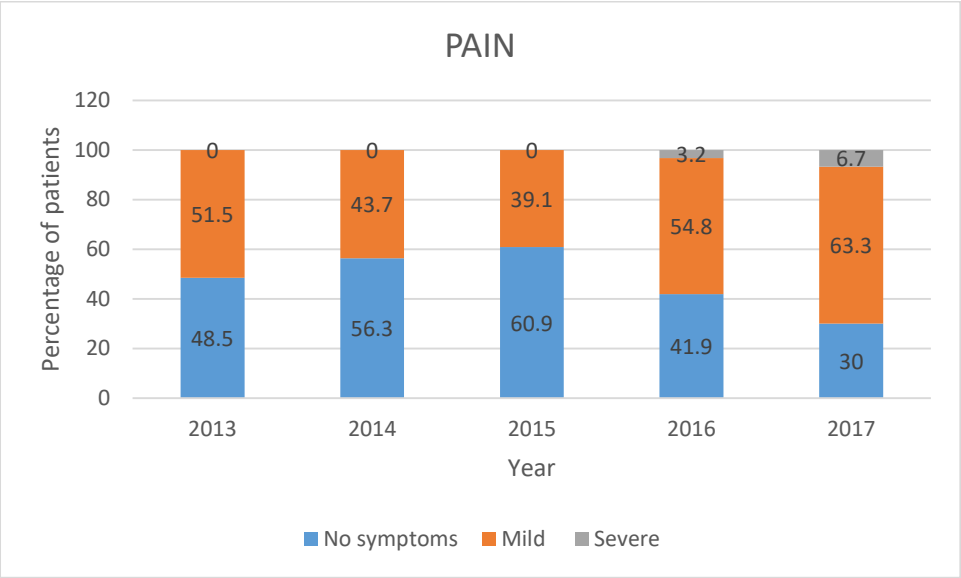


Figure 13 Pain Symptom Score Distribution

Pain symptom was assessed using questions Q4 to Q7 in the quality of life questionnaire. 4 patients (6.7%) operated in the year 2017 had severe symptoms, 38 patients (63.3%) had mild symptoms. 18 patients (30%) had no symptoms of pain. Only one patient operated in the year 2016 had severe symptoms and 17 patients (54.8%) had mild symptoms, 13 patients (41.9%) had no symptoms. No patients operated in the years 2013, 2014 and 2015 had severe pain symptoms. 9 patients (39.1%) operated in the year 2015 had mild symptoms and 14 patients (60.9%) had no symptoms of pain. 14 patients (43.7%) of the patients operated in the year 2014 had mild pain and 18 patients (56.3%) had no symptoms. 17 patients (51.5 %) of the patients operated in the year 2013 had mild symptoms of pain and 16 patients (48.5%) had no symptoms of pain.

Reflux symptoms

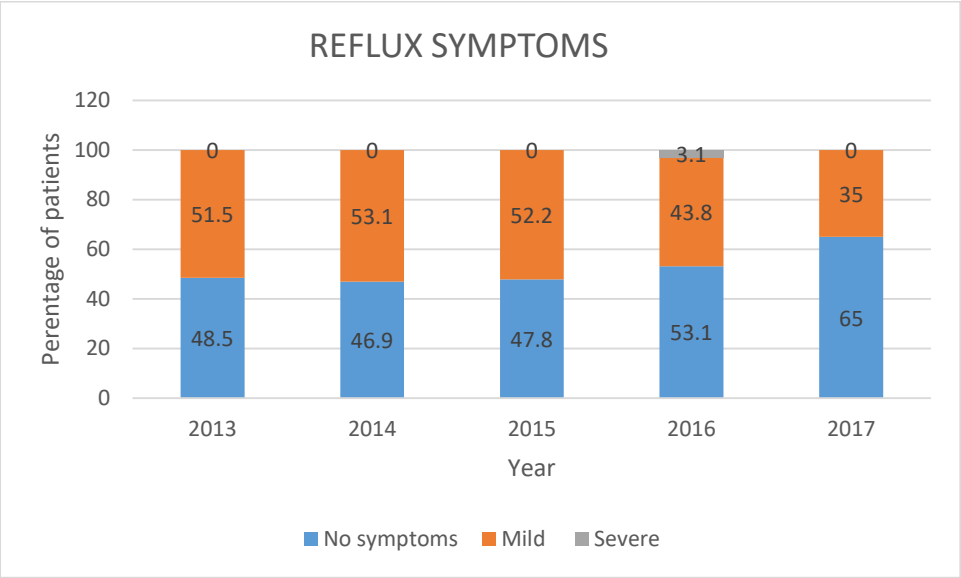


Figure 14 Reflux Symptom Score Distribution

Reflux symptoms were assessed from questions Q8 to Q10 on the quality of life questionnaire. Only one patient operated in the year 2016 had severe symptoms of reflux. No patients operated in the years 2013, 2014, 2015 and 2017 had severe reflux symptoms. The number of patients who had mild reflux symptoms were 17(51.5%), 17(53.1%), 12(52.2%), 14(43.8%) and 21(35%) in the years 2013, 2014, 2015, 2016 and 2017 respectively. The number of patients who had no reflux symptoms were 16(48.5%), 15(46.9%), 11(47.8%), 17(53.1%) and 39(65%) in the years 2013, 2014, 2015, 2016 and 2017 respectively.

Eating restriction symptom scale

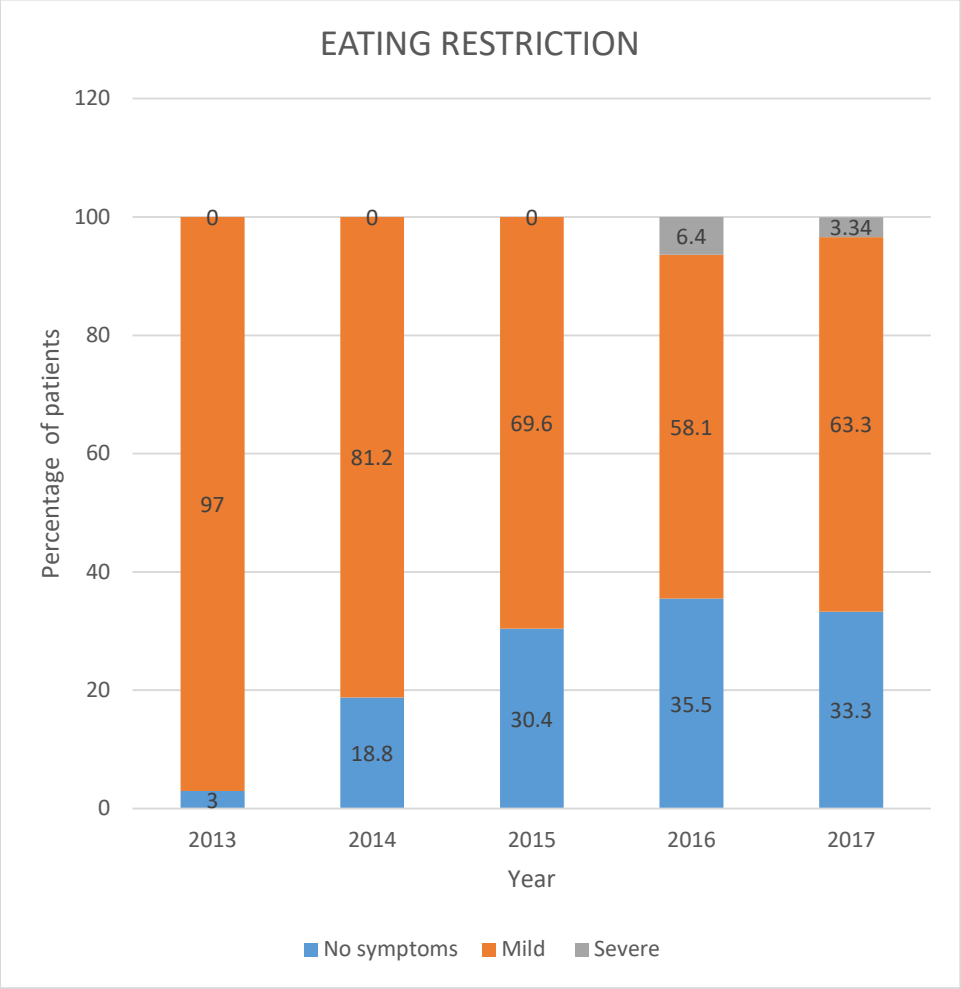


Figure 15 Eating Restriction Symptom Score Distribution

Eating restriction were assessed using question numbers Q11 to Q14 on the quality of life questionnaire. 2 patients operated in the year 2016 and 2017 had severe eating restriction. The number of patients operated in the years 2013, 2014, 2015, 2016 and 2017 who had mild eating restrictions were 32(97%), 26(81.2%), 16(69.6%), 18(58.1%) and 38(63.3%) respectively. 1(3%), 6(18.8%), 7(30.4%), 11(35.5%) and 20(33.3%) patients operated in the years 2013, 2014, 2015, 2016 and 2017 had no symptoms of eating restriction.

Overall quality of life

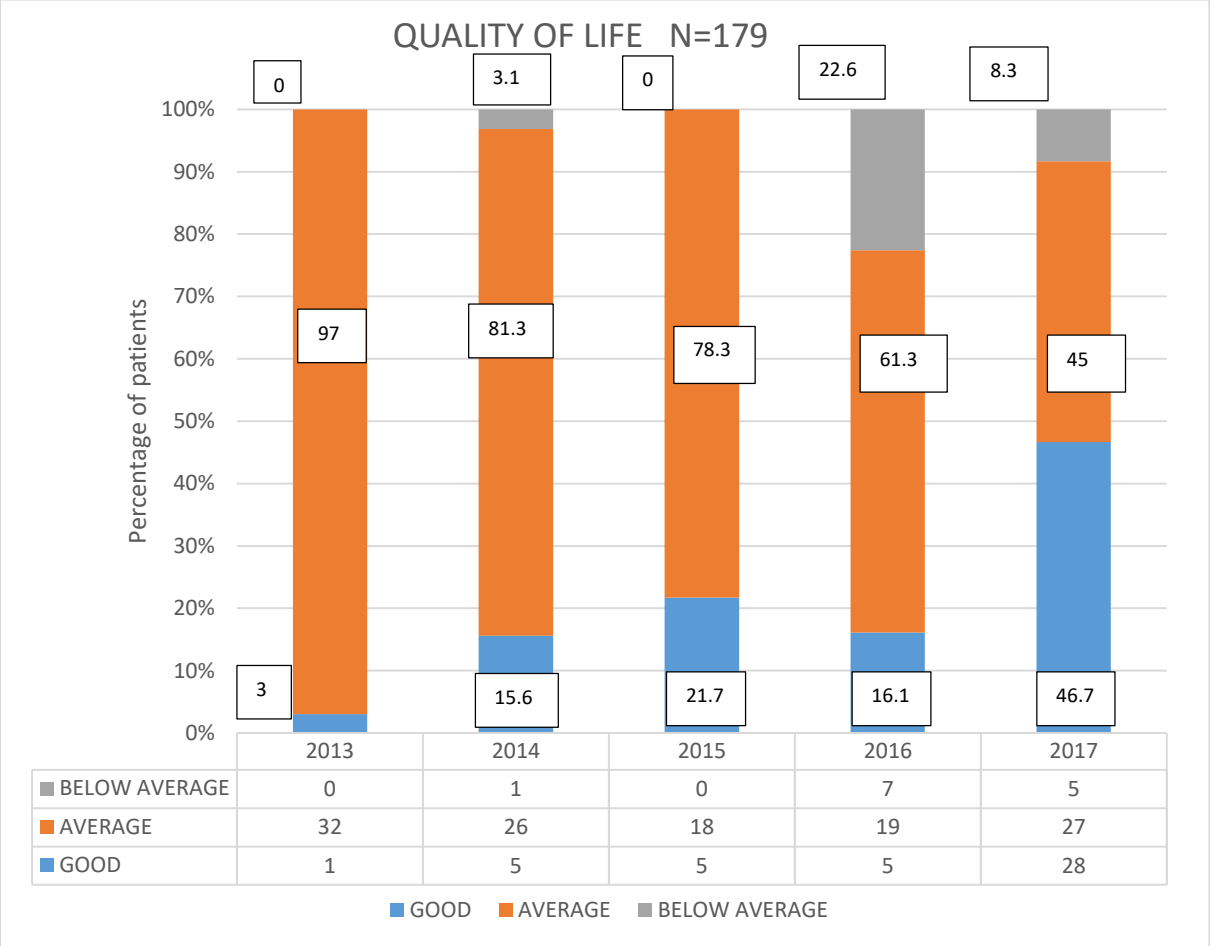


Figure 16 Quality of Life Distribution

Overall quality of life was assessed using question numbers Q18 and Q19 of the quality of life questionnaire. Median score was 66.67 and was taken as average quality of life. Patients with scores higher than 66.67 were considered as good quality of life and patients with scores less than 66.67 were considered as below average quality of life. 46.7% of patients operated in 2017 had good quality of life. Only 3% of patients operated in the year 2013 had good quality of life. 3.1% patients operated in 2014, 22.6% patients in 2016 and 8.3 5 patients in 2017 had below average quality of life. 97%, 81.3%, 78.3%, 61.3% and 45% of patients operated in the years 2013, 2014, 2015, 2016 and 2017 respectively had average quality of life.

Total Vs Subtotal gastrectomy

Table 39 Total vs Subtotal Gastrectomy QOL and Symptom Score analysis

VARIABLE	GASTRECTOMY	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Total	37	0	-1.33 (-2.56--.098)	**0.035**
	Subtotal	142	1.3(7.4)		
PAIN	Total	37	10.4(13.1)	-1.61 (-7.31-4.09)	0.577
	Subtotal	142	12.0(16.2)		
REFLUX SYMPTOMS	Total	37	10.8(13.0)	-.38 (-5.38-4.62)	0.881
	Subtotal	142	11.2(13.9)		
EATING RESTRICTIONS	Total	37	19.1(15.6)	-1.16 (-6.57-4.25)	0.673
	Subtotal	142	20.3(14.7)		
QOL	Total	37	60.9(10.4)	-.40 (-4.58-3.79)	0.851
	Subtotal	142	70.3(11.6)		

Independent sample T test was used to assess the difference between the type of gastrectomy and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as pain, reflux, eating symptoms and overall quality of life. There was statistical difference between the two types of surgery in dysphagia symptom scale. (p=0.035)

Method of surgery (Laparoscopy vs Laparoscopy assisted vs Open surgery)

Table 40 Method of surgery QOL and Symptom Score analysis

VARIABLE	SURGERY METHOD	N	MEAN(S.D)	P VALUE
DYSPHAGIA	Totally Laparoscopy	5	0	0.888
	Laparoscopy assisted	4	0	
	Open	170	1.11(6.8)	
PAIN	Totally Laparoscopy	5	10(10.87)	0.886
	Laparoscopy assisted	4	8.3(6.8)	
	Open	170	11.76(15.6)	
REFLUX SYMPTOMS	Totally Laparoscopy	5	4.44(6.09)	0.546
	Laparoscopy assisted	4	11.11(15.7)	
	Open	170	11.31(13.7)	
EATING RESTRICTIONS	Totally Laparoscopy	5	10(9.1)	0.251
	Laparoscopy assisted	4	25(6.8)	
	Open	170	20.25(15)	
QOL	Totally Laparoscopy	5	73.3(9.1)	0.683
	Laparoscopy assisted	4	66.67(0)	
	Open	170	70.22(11.5)	

ANOVA (Analysis of variance) was used to assess the statistical difference between the method of surgery and symptom scores and quality of life. This showed no statistical significance.

Anastomotic leak

Table 41 Anastomotic Leak QOL and Symptom Score analysis

VARIABLE	ANASTOMOTIC LEAK	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	YES	24	1.39(6.8)	.385 (-2.49-3.26)	0.79
	NO	155	1.00(6.6)		
PAIN	YES	24	11.11(14.5)	-.61 (-7.39-6.17)	0.86
	NO	155	11.72(15.8)		
REFLUX SYMPTOMS	YES	24	11.11(14.3)	.00 (-5.94- 5.94)	1.0
	NO	155	11.11(13.6)		
EATING RESTRICTIONS	YES	24	16.32(15.2)	-4.33 (-11.12-2.47)	0.18
	NO	155	20.65(14.7)		
QOL	YES	24	70.83(12.3)	.70 (-4.75-6.15)	0.78
	NO	155	70.13(11.2)		

Independent sample T test was used to assess the difference between the patients who had anastomotic leak in postoperative period and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, pain, reflux, eating symptoms and overall quality of life.

Reoperation

Table 42 Re-operation QOL and Symptom Score analysis

VARIABLE	REOPERATION	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Yes	27	1.23(6.42)	1.39(-2.53 -2.95)	0.88
	No	152	1.02(6.69)		
PAIN	Yes	27	10.80(14.21)	3.27(-7.44-5.47)	0.76
	No	152	11.79(15.89)		
REFLUX SYMPTOMS	Yes	27	10.29(13.76)	2.87(-6.62-4.68)	0.74
	No	152	11.26(13.71)		
EATING RESTRICTIONS	Yes	27	17.90(15.10)	3.10(-8.66-3.57)	0.41
	No	152	20.45(14.79)		
QOL	Yes	27	68.59(9.81)	2.41(-6.67-2.84)	0.43
	No	152	70.50(11.58)		

Independent sample T test was used to assess the difference between the patients who had re-operation and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, pain, reflux, eating symptoms and overall quality of life.

Upfront surgery

Table 43 Upfront Surgery QOL and Symptom Score analysis

VARIABLE	UPFRONT SURGERY	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Yes	147	1.29(7.30)	1.28 (0.09-2.48)	**0.04**
	No	32	0		
PAIN	Yes	147	11.28(15.75)	-2.0 (-8.02-4.02)	0.51
	No	32	13.28(15.10)		
REFLUX SYMPTOMS	Yes	147	12.32(14.07)	6.76 (2.48-11.05)	**0.002**
	No	32	5.56(10.18)		
EATING RESTRICTIONS	Yes	147	20.86(14.84)	4.46 (-1.23-10.14)	0.12
	No	32	16.41(14.43)		
QOL	Yes	147	69.06(10.90)	-6.46 (-11.09 - (-1.82))	**0.007**
	No	32	75.52(11.96)		

Independent sample T test was used to assess the difference between the patients who underwent upfront surgery against those who had neoadjuvant therapy followed by surgery and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as pain and eating symptoms. However, there was statistical difference between the two groups in dysphagia symptom scale (p=0.04), reflux symptom scale (p=0.002) and overall quality of life. (p=0.007)

Proximal margin

Table 44 Positive Proximal Resection Margin QOL and Symptom Score analysis

VARIABLE	PROXIMAL MARGIN	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Positive	4	0	-1.07 (-7.71-5.55)	0.75
	Negative	175	1.08(6.70)		
PAIN	Positive	4	22.91(25.80)	11.54 (-4.0-27.07)	0.14
	Negative	175	11.38(15.33)		
REFLUX SYMPTOMS	Positive	4	16.67(14.34)	5.68 (-7.99- 19.35)	0.41
	Negative	175	10.98(13.69)		
EATING RESTRICTIONS	Positive	4	25.0(18.00)	5.05 (-9.77 -19.86)	0.50
	Negative	175	19.95(14.79)		
QOL	Positive	4	66.67(0.0)	-3.64 (-5.35 – (-1.93))	**0.00**
	Negative	175	70.30(11.45)		

Independent sample T test was used to assess the difference between the presence of positive proximal margin on the resection specimen and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, pain, reflux and eating symptoms. However, there was statistical difference between the presence of positive margin on the resection specimen and overall quality of life (p=0.00)

Distal margin

Table 45 Positive Distal Resection Margin QOL and Symptom Score analysis

VARIABLE	DISTAL MARGIN	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Positive	17	0	-1.17(-4.51 – 2.17)	0.49
	Negative	162	1.17(6.96)		
PAIN	Positive	17	7.84(11.96)	-4.19(-12.05 – 3.66)	0.29
	Negative	162	12.04(15.93)		
REFLUX SYMPTOMS	Positive	17	13.07(15.33)	2.17(-4.73 – 9.06)	0.54
	Negative	162	10.91(13.54)		
EATING RESTRICTIONS	Positive	17	24.02(11.74)	4.37(-2.03 – 10.77)	0.17
	Negative	162	19.65(15.08)		
QOL	Positive	17	69.79(9.07)	-0.48(-6.36 – 5.40)	0.87
	Negative	162	70.27(11.56)		

Independent sample T test was used to assess the difference between the presence of positive distal margin on the resection specimen and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, pain, reflux, eating symptoms and overall quality of life.

Resection intent

Table 46 Resection intent QOL and Symptom Score analysis

VARIABLE	RESECTION INTENT	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	Palliative	23	0	-1.21 (-4.14 – 1.71)	0.415
	Curative	156	1.21(7.09)		
PAIN	Palliative	23	6.88(9.28)	-5.46 (-10.15 – (-0.76))	**0.024**
	Curative	156	12.34(16.24)		
REFLUX SYMPTOMS	Palliative	23	12.56(15.46)	1.66 (-4.38 – 7.71)	0.588
	Curative	156	10.90(13.44)		
EATING RESTRICTIONS	Palliative	23	19.93(13.93)	-0.16 (-6.58 – 6.26)	0.962
	Curative	156	20.09(14.99)		
QOL	Palliative	23	68.84(11.57)	-1.59 (-6.60 - 3.42)	0.532
	Curative	156	70.43(11.32)		

Independent sample T test was used to assess the difference between the resection intent such as palliative or curative and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, reflux, eating symptoms and overall quality of life. There was statistical difference between the two resection intent in pain symptom scale. (p=0.024)

T Stage

ANOVA (Analysis of variance) was used to assess the statistical difference between the method of surgery and symptom scores and quality of life. This showed no statistical significance.

N Stage

ANOVA (Analysis of variance) was used to assess the statistical difference between the method of surgery and symptom scores and quality of life. This showed no statistical significance.

M Stage

Table 47 M Stage QOL and Symptom Score analysis

VARIABLE	M stage	N	MEAN(S.D)	MEAN DIFFERENCE(95%CI)	P VALUE
DYSPHAGIA	0	176	1.07(6.69)	1.07(-6.57 – 8.71)	0.78
	1	3	0		
PAIN	0	176	11.41(15.57)	-13.59(-31.47 – 4.29)	0.135
	1	3	25(14.43)		
REFLUX SYMPTOMS	0	176	10.86(13.64)	-15.06(-29.60 – (-0.53))	0.046
	1	3	25.93(6.42)		
EATING RESTRICTIONS	0	176	20.22(14.76)	9.11(-7.92 – 26.13)	0.29
	1	3	11.11(19.25)		
QOL	0	176	70.29(11.42)	3.62(-9.43 – 16.67)	0.59
	1	3	66.67(0)		

Independent sample T test was used to assess the difference between the patients who had metastatic disease and symptom scales and quality of life. There was no statistical difference between the two groups in symptoms such as dysphagia, pain, reflux, eating symptoms and overall quality of life.

Quality of life in relation to time

In bivariate analysis, as the follow up time period increases by a month, the quality of life score reduces by 2. And this observation was statistically significant. (p value 0.045)

Variables	T	Lower Bound	Upper bound	P value
Follow up period	-2.019	-0.177	-0.002	**0.045**

In multivariate analysis, after adjusting for the factors such as age, gender, comorbidities, anastomotic leak, re-operation, Metastatic disease (M stage) and resection intent (Palliative or curative), as the follow up time period increases by a month, the quality of life score decreases by 2 points.

Variables	T	Lower Bound	Upper bound	P value
Follow up period	-2.182	-.198	-.010	**.031**
Gender	.510	-2.881	4.885	.611
Age	-.026	-.155	.151	.979
Diabetes	.000	-5.252	5.253	1.000
Hypertension	-.523	-7.115	4.135	.602
Asthma	-.645	-13.791	7.003	.520
CAD	-.841	-10.491	4.225	.402
COPD	.185	-12.764	15.400	.854
Thyroid	-.537	-10.928	6.256	.592
Reoperation	1.662	-1.256	14.610	.098
Anastomotic leak	-1.645	-15.206	1.384	.102
M stage	-.865	-19.903	7.780	.389
Resection type	-.146	-5.827	5.025	.884

Average survival period

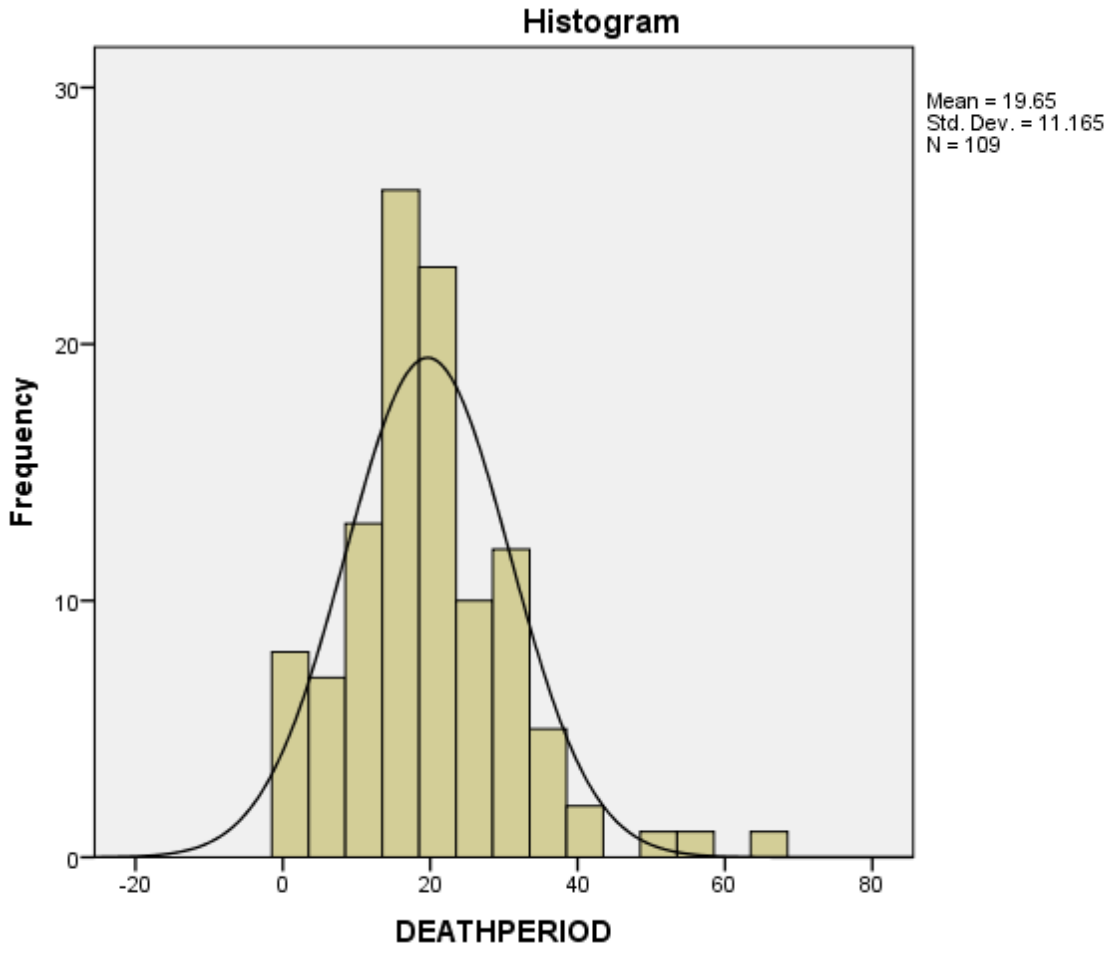


Figure 17 Average post-operative survival period

Minimum = 1, Maximum = 65

110 patients who underwent gastrectomy for adenocarcinoma stomach were reported to be dead at the time of interview. The mean survival of the patients was 19.65 months.

DISCUSSION

The incidence of exocrine pancreatic function following subtotal gastrectomy using stool elastase was found to be 40% in this study. In comparison with literature, with reference to Langenbecks Arch Chir. 1985;367(21):41-50 , exocrine pancreatic deficiency found among post subtotal gastrectomy patients with billroth II reconstruction was found to be 69.7%

The incidence of exocrine pancreatic function following total gastrectomy using stool elastase was found to be 16.7% in this study. In comparison with literature, with reference to AmJ Gastroenterol. 1996 Feb;91(20):341-7., exocrine pancreatic insufficiency was found among post total gastrectomy patient to be 100%.

In this study, the overall incidence of exocrine pancreatic insufficiency following gastrectomy (including both total and subtotal gastrectomy using <200 μg elastase/g faeces cut off) was 34.6%. Therefore, compared to the available western literature, the incidence was significantly lower in our population. This may be because of the dietary habits and fat content in Indian diet. All the patients were assessed for clinical symptoms of steatorrhoea or lipid malabsorption in the post-operative period at the time of testing stool elastase. All the patients diagnosed to have decreased stool elastase levels, had sub-clinical exocrine pancreatic insufficiency in the post-operative period following gastrectomy. That is, none of our patients had clinically significant steatorrhoea or fat malabsorption

We have used <200 μg elastase/g faeces as cut off for diagnosing exocrine pancreatic insufficiency(35). Patients who had a normal pre-operative stool elastase and developed an abnormally low value of stool elastase following gastrectomy were considered to have developed exocrine pancreatic insufficiency following surgery. The average timing of the stool elastase testing was 90 days, from the time of surgery. However, the time of testing postoperative testing ranged from 14 days to 351 days. This wide difference in the post-operative follow up visit was due to the varied geographic location of the patients and the patient logistics in relation to the centre where they prefer to take adjuvant therapy. Some patients preferred to continue further adjuvant therapy at hometown and had come for the final post-operative review in General surgery OPD within 1 month. Some patients had immediately left to hometown following discharge from hospital and had returned after 6-8 months back to our institute for follow-up when the post-operative stool elastase testing was done. However, statistically, there was no significant difference between the time of post-operative testing and the incidence of exocrine pancreatic insufficiency.

Our patients do not receive pancreatic enzyme supplementation on a routine basis post-operatively. Also exocrine pancreatic function testing is not done routinely in our patients post-operatively. From this study, we can infer that that incidence of exocrine pancreatic insufficiency is low compared to the western data. Hence our patients do not require routine post-operative supplementation of pancreatic enzymes. However, selective administration of pancreatic supplement therapy might benefit the sub-group of patients who develop abnormally low stool elastase in the postoperative period which

in turn refers to exocrine pancreatic insufficiency. In India, direct testing methods for exocrine pancreatic function are not available. The only available method of testing exocrine pancreatic function is through indirect testing methods such as stool elastase.

Stool elastase testing can be done in patients postoperatively in all gastrectomy patients and selective administration of pancreatic enzyme supplementation can be done in those patients who have developed exocrine pancreatic insufficiency. This forms a cost-effective treatment strategy in handling post-gastrectomy exocrine pancreatic insufficiency.

18 patients included in the study had abnormally low stool elastase pre-operatively. However, stool elastase is unaffected/ minimally affected by symptoms such as gastric outlet obstruction or bleeding seen in gastric carcinoma. Hence, further analysis may be needed substantiate the prevalence of subclinical pancreatic insufficiency in our normal population.

The long-term impact of gastrectomy on exocrine pancreatic function is unclear. This warrants further studies with longer post-operative follow-up periods to see the trend of exocrine pancreatic function in these patients. If a patient was diagnosed to have exocrine pancreatic insufficiency in the postoperative period and was started on pancreatic enzyme replacement therapy, then stool elastase testing could be done after 6 months to 1 year and the need for continuation of pancreatic enzyme replacement therapy can be decided based on it.

Majority of our stomach cancer patients who underwent gastrectomy had average quality of life with mean score of 66.67. It is seen from the study that the number of patients who had a good quality of life were more in the 1 year follow up period than 5 year follow up patients. This can be attributed for the fact that these patients would have suffered from the disease and had symptoms of obstruction and bleeding. Immediately following surgery, patients tend to feel better since they have been relieved of their acute symptoms and is able to tolerate a normal diet. Patients who are at longer post-operative period such as 3,4 and 5 years have been used to the postoperative anatomy for some time and have higher expectations regarding the quality of life. Multivariate analysis, after adjusting for the factors such as age, gender, comorbidities, anastomotic leak, re-operation, Metastatic disease (M stage) and resection intent (Palliative or curative) showed that as the follow up time period from the time of surgery increases by a month, the quality of life score decreases by 2 points.

Symptoms of dysphagia were very low in our post-operative patients although one patient complained of severe symptoms of dysphagia in the 1 year follow up period. 6.7% of patients in the 1 year follow up period complained of severe pain and 3.2% patients in the 2 year follow up period complained of pain. No patient complained of severe pain symptoms among the patients operated in 2013, 2014 and 2015.

Mild reflux symptoms were seen more among patients operated in 2013(51.5%), 2014(53.1%) and 2015(52.2%) compared to 2016(43.8%) and 2017(35%). Most patients (65%) in the 1 year follow up group 2017 had no symptoms of reflux. Severe

eating restrictions were seen in 6.4% of patients operated in 2016 and 3.34% of patients operated in 2017. No patient operated in 2013, 2014 and 2015 had severe eating restrictions.

Only dysphagia symptoms had statistically significance (p=0.035) on comparing the groups of patients who underwent total and subtotal gastrectomy. There was no statistical significance as far as the other symptoms such as pain, reflux and eating restriction. Also there was no change in the overall quality of life.

There was no change in the symptom score and overall quality of life among patients who had an anastomotic leak in the post-operative period. Also there was no change in the symptom score and overall quality of life among patients who had a re-operation in the post-operative period. Although the overall cancer related survival may be influenced by the occurrence of anastomotic leak, in this study there was no statistical difference in their quality of life.

Patients who had an upfront surgery had statistically significant higher dysphagia symptom score and reflux symptom score compared to the patients who had surgery after neoadjuvant therapy. Also the overall quality of life had slightly better score among patients who had surgery after neoadjuvant therapy. This can be attributed to the fact that the patients who had upfront surgery had advanced disease and had come with obstruction symptoms or bleeding symptoms which usually warrant an upfront surgery.

Presence of a positive proximal or distal margin on the resection specimen did not have a significant influence of the symptom score of the patients who were alive at the time of interview. However, patients with positive proximal margin had slightly lower quality of life score compared to those who had negative proximal margin which was found to be statistically significant. Positive distal resection margin did not have a significant influence on the quality of life of patients who survived so far.

LIMITATIONS

Since patients were from a wide geographical background, long-term follow up was low. Post-operative stool sampling was done on various post-operative periods in different patients. This was because of logistic reasons in relation to patient continuing adjuvant therapy at our centre or at hometown. Patients who were completely obstructed were unable to give a stool sample for pre-operative stool elastase testing and could not be included in the study. Some patients who underwent gastrectomy for gastric cancer were unable to be contacted for assessment of quality of life.

CONCLUSIONS

1. The incidence of exocrine pancreatic insufficiency was low in our population compared to the available Western data. Only 34.6% our patients developed sub-clinical exocrine pancreatic insufficiency following gastrectomy for gastric cancer.
2. Routine supplementation of pancreatic enzyme to all patients undergoing gastrectomy may not be required.
3. However, screening for pancreatic exocrine insufficiency by stool elastase testing, in the subgroup of patients who are malnourished or have symptoms of fat malabsorption may help detect this problem, which can be addressed effectively by exocrine pancreatic supplementation. Long-term follow up of these patients would help to assess the trend in exocrine pancreatic function following gastrectomy and would help in patient directed therapy.
4. There was no statistical difference between total and subtotal gastrectomy with the incidence of exocrine pancreatic insufficiency.
5. More number of patients at 1-year follow-up have higher pain and eating restriction score which decreases as the follow up time period increases.
6. The mean overall quality of life score was 70.2 (Range 0 – 100).
7. Quality of life score was not influenced by the type of gastrectomy, method of surgery, stage of disease at presentation or the resection intent.
8. As the follow up time period from the time of surgery increases, the overall quality of life score decreases.

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ANNEXURES

Appendix I – Approval Letter from Institutional Review Board (IRB)

OFFICE OF RESEARCH
INSTITUTIONAL REVIEW BOARD (IRB)
CHRISTIAN MEDICAL COLLEGE, VELLORE, INDIA

Dr. B.J. Prashantham, M.A., M.A., Dr. Min (Clinical)
Director, Christian Counselling Center,
Chairperson, Ethics Committee.

Dr. Anna Benjamin Pulimood, M.B.B.S., MD., Ph.D.
Chairperson, Research Committee & Principal

Dr. Biju George, M.B.B.S., MD., DM.,
Deputy Chairperson,
Secretary, Ethics Committee, IRB
Additional Vice-Principal (Research)

January 07, 2017

Dr. Rajeevan.P.S,
PG Registrar,
Department of Surgery III,
Christian Medical College,
Vellore - 632 004.

Sub: **Fluid Research Grant NEW PROPOSAL:**
Exocrine pancreatic insufficiency following gastrectomy and quality of life in patients undergoing gastric resection for malignancy.
Dr.Rajeevan.P.S, Employment Number: 29544, P.G.Registrar, Surgery III, Dr.Inian Samarasam Employment Number: 30123, Surgery III, Dr. Vijay Abraham Emp No: 20113, Surgery III, Dr.Sam Varghese George Emp No: 28216, Surgery III, Dr. Jonathan Sadhu, Emp No: 28810, General Surgery, Dr. K. A Balasubramanian, Consultant Division of gastrointestinal services Wellcome lab, Mrs. Grace Rebekah Emp No: 32070, Biostatistics

Ref: IRB Min No: 10314 [OBSERVE] dated 12.10.2016

Dear Dr.Rajeevan.P.S,

I enclose the following documents:-

1. Institutional Review Board approval 2. Agreement

Could you please sign the agreement and send it to Dr. Biju George, Addl. Vice Principal (Research), so that the grant money can be released.

With best wishes,

Dr. Biju George
Secretary (Ethics Committee)
Institutional Review Board

Dr. BIJU GEORGE

Cc: Dr.Inian Samarasam, Dept. of Surgery - III, CMC, Vellore

Ethics Committee Blue, Office of Research, 1st Floor, Carman Block, Christian Medical College, Vellore, Tamil Nadu 632 002
Tel: 0416 – 2284204, 2284202 Fax: 0416 – 2262788, 2284481 E-mail: research@cmcvellore.ac.in

OFFICE OF RESEARCH
INSTITUTIONAL REVIEW BOARD (IRB)
CHRISTIAN MEDICAL COLLEGE, VELLORE, INDIA

Dr. B.J. Prashantham, M.A., M.A., Dr.Min(Theol)
Director, Christian Counseling Center,
Chairperson, Ethics Committee

Dr. Anna Benjamin Pulimood, M.B.B.S., M.D., Ph.D.,
Chairperson, Research Committee & Principal

Dr. Biju George, M.B.B.S., MD., DM.,
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January 07, 2017

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Sub: **Fluid Research Grant NEW PROPOSAL:**
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Ref: IRB Min No: 10314 [OBSERVE] dated 12.10.2016

Dear Dr.Rajeevan.P.S,
The Institutional Review Board (Blue, Research and Ethics Committee) of the Christian Medical College, Vellore, reviewed and discussed your project titled "Exocrine pancreatic insufficiency following gastrectomy and quality of life in patients undergoing gastric resection for malignancy" on October 12th 2016.

The Committee reviewed the following documents:

1. IRB Application format
2. Consent forms and Information Sheets
3. Questionnaire
4. Data Collection form
5. Cvs of Drs. Jonathan, Sam, Vijay, Balasubramanian, Inian, Rajeevan and Grace.
6. No. of documents 1 – 5.

The following Institutional Review Board (Blue, Research & Ethics Committee) members were present at the meeting held on October 12th 2016 in the BRTC Conference Room, Christian Medical College, Bagayam, Vellore 632002.

Ethics Committee Blue, Office of Research, 1st Floor, Carman Block, Christian Medical College, Vellore, Tamil Nadu 632 002
Tel: 0416 – 2284294, 2284202 Fax: 0416 – 2262788, 2284481 E-mail: research@cmcvellore.ac.in

Dr. B.J. Prashantham, M.A., M.A., Th.Dip.Clinical
Director, Christian Counseling Centre,
Chairperson, Ethics Committee

Dr. Anna Benjamin Pulimood, M.B.B.S., M.D., Ph.D.
Chairperson, Research Committee & Principal

Dr. Biju George, M.B.B.S., M.D., D.M.
Deputy Chairperson,
Secretary, Ethics Committee, IRB
Additional Vice-Principal (Research)

Name	Qualification	Designation	Affiliation
Dr. Biju George	MBBS, MD, DM	Professor, Haematology, Research), Additional Vice Principal , Deputy Chairperson (Research Committee), Member Secretary (Ethics Committee), IRB, CMC, Vellore	Internal, Clinician
Dr. B. J. Prashantham	MA(Counseling Psychology), MA (Theology), Dr. Min (Clinical Counselling)	Chairperson, Ethics Committee, IRB. Director, Christian Counseling Centre, Vellore	External, Social Scientist
Dr. Ratna Prabha	MBBS, MD (Pharma)	Associate Professor, Clinical Pharmacology, CMC, Vellore	Internal, Pharmacologist
Dr. Rekha Pai	BSc, MSc, PhD	Associate Professor, Pathology, CMC, Vellore	Internal,Basic Medical Scientist
Rev. Joseph Devaraj	BSc, BD	Chaplaincy Department, CMC, Vellore	Internal, Social Scientist
Mr. C. Sampath	BSc, BL	Advocate, Vellore	External, Legal Expert
Dr. Santhanam Sridhar	MBBS, DCH, DNB	Professor, Neonatology, CMC, Vellore	Internal, Clinician
Mrs. Sheela Durai	MSc Nursing	Professor, Medical Surgical Nursing, CMC, Vellore	Internal, Nurse
Ms. Grace Rebekha	M.Sc., (Biostatistics)	Lecturer, Biostatistics, CMC, Vellore	Internal, Statistician
Mrs. Pattabiraman	BSc DSSA	Social Worker, Vellore	External, Lay Person
Dr. Vivek Mathew	MD (Gen. Med.) DM (Neuro) Dip. NB (Neuro)	Professor, Neurology, CMC, Vellore	Internal, Clinician
Dr. Balamugesh	MBBS, MD(Int Med), DM, FCCP (USA)	Professor, Pulmonary Medicine, CMC, Vellore	Internal, Clinician

Ethics Committee Blue, Office of Research, 1st Floor, Carman Block, Christian Medical College, Vellore, Tamil Nadu 632 002
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Chairperson, Ethics Committee.

Dr. Anna Benjamin Pulimood, M.B.B.S., MD., Ph.D.,
Chairperson, Research Committee & Principal

Dr. Biju George, M.B.B.S., MD., DM.,
Deputy Chairperson,
Secretary, Ethics Committee, IRB
Additional Vice-Principal (Research)

Dr. Sneha Varkki	MBBS, DCH, DNB	Professor, Paediatrics, CMC, Vellore	Internal, Clinician
Mrs. Emily Daniel	MSc Nursing	Professor, Medical Surgical Nursing, CMC, Vellore	Internal, Nurse
Dr. Sathish Kumar	MBBS, MD, DCH	Professor, Child Health, CMC, Vellore	Internal, Clinician
Dr. Inian Samarasam	MS, FRCS, FRACS	Professor, Surgery, CMC, Vellore	Internal, Clinician
Dr. Thomas V Paul	MBBS, MD, DNB, PhD	Professor, Endocrinology, CMC, Vellore	Internal, Clinician

We approve the project to be conducted as presented.

Kindly provide the total number of patients enrolled in your study and the total number of withdrawals for the study entitled: "Exocrine pancreatic insufficiency following gastrectomy and quality of life in patients undergoing gastric resection for malignancy" on a monthly basis. Please send copies of this to the Research Office (research@cmcvellore.ac.in).

Fluid Grant Allocation:

A sum of 1,00,000/- INR (Rupees One Lakh Only) will be granted for 2 years. 50,000/- INR (Rupees Fifty Thousand only) will be granted for 12 months as an Ist Installment. The rest of the 50,000/- INR (Rupees Fifty Thousand only) each will be released at the end of the first year as 2 nd Installment.

Yours sincerely,

Dr. Biju George
Secretary (Ethics Committee)
Institutional Review Board

Dr. BIJU GEORGE
MBBS, MD., DM
SECRETARY (ETHICS COMMITTEE)
Institutional Review Board
Christian Medical College, Vellore - 632 002.

IRB Min No: 10314 [OBSERVE] dated 12.10.2016

Ethics Committee Blue, Office of Research, 1st Floor, Carman Block, Christian Medical College, Vellore, Tamil Nadu 632 002
Tel: 0416 – 2284284, 2284282 Fax: 0416 – 2262788, 2284481 E-mail: research@cmcvellore.ac.in

Appendix II – Permission letter from EORTC

Gmail rajeevan philip <rajeevanps@gmail.com>

QLQ-C30 download request from Rajeevan Philip Sridhar

qlqc30@eortc.be <qlqc30@eortc.be> Sun, Aug 28, 2016 at 11:18 PM
To: rajeevanps@gmail.com

Dear Sir/Madam,

Please find below the links where you can download the documents you requested.

Best regards,

Your data:

Title: Dr.
Firstname: Rajeevan
Lastname: Philip Sridhar
Hospital/Institution: Christian Medical College
Address: Surgery 3 office, Paul brand building, Ida scudder road, Vellore
County/State: Tamil Nadu
Postal Code: 632004
Country: India
Phone: 8870427408
Fax:
Email: rajeevanps@gmail.com
Protocol: QUALITY OF LIFE AMONG PATIENTS WITH GASTRIC RESECTION FOR GASTRIC MALIGNANCY

Documents requested:

Gastric Module (STO22) in Bengali
Gastric Module (STO22) in Gujarati
Gastric Module (STO22) in Kannada
Gastric Module (STO22) in Malayalam
Gastric Module (STO22) in Marathi
Gastric Module (STO22) in Telugu
Gastric Module (STO22) in English
Gastric Module (STO22) in Hindi
Gastric Module (STO22) in Tamil
QLQ-C30 Scoring Manual
Full reference values
Latest issue of the EORTC Quality of Life Group Newsletter
Scoring instructions: Gastric STO22

URLs:

http://www.eortc.be/qol/files/STO22/STO22%20Bengali.pdf
http://www.eortc.be/qol/files/STO22/STO22%20Gujarati.pdf
http://www.eortc.be/qol/files/STO22/STO22%20Kannada.pdf
http://www.eortc.be/qol/files/STO22/STO22%20Malayalam.pdf
http://www.eortc.be/qol/files/STO22/STO22%20Marathi.pdf
http://www.eortc.be/qol/files/STO22/STO22%20Telugu.pdf
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http://www.eortc.be/qol/files/STO22/STO22%20Tamil.pdf
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http://www.eortc.be/qol/files/RV/RV_complete.pdf
http://www.eortc.be/qol/files/QOL_newsletter.pdf
http://www.eortc.be/qol/files/Scoringinstructions/STO22_summary.pdf

If the links don't work, you can copy and paste the entire URL (so with .pdf included) into your browser and that should work.If you are having other technical difficulties please contact us by email: qlqc30@eortc.be

Gmail rajeevan philip <rajeevanpc@gmail.com>

QLQ-C30 download request from Rajeevan Philip Sridhar

qlqc30@eortc.be <qlqc30@eortc.be> Mon, Sep 12, 2016 at 6:05 PM
To: rajeevanps@gmail.com

Dear Sir/Madam,

Please find below the links where you can download the documents you requested.

Best regards,

Your data:

Title: Dr.
Firstname: Rajeevan
Lastname: Philip Sridhar
Hospital/Institution: Christian Medical College
Address: Surgery 3 office, Paul brand building, Ida scudder road, Vellore
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Email: rajeevanps@gmail.com
Protocol: QUALITY OF LIFE AMONG PATIENTS WITH GASTRIC RESECTION FOR GASTRIC MALIGNANCY

Documents requested:

QLQ-C30 Core Questionnaire in Hindi
QLQ-C30 Scoring Manual

URLs:

http://www.eortc.be/qol/files/C30/QLQ-C30%20IndianHindi.pdf
http://www.eortc.be/qol/files/SCManualQLQ-C30.pdf

If the links don't work, you can copy and paste the entire URL (so with .pdf included) into your browser and that should work.If you are having other technical difficulties please contact us by email: qlqc30@eortc.be

Appendix III – Information Sheet

Exocrine pancreatic insufficiency in post gastrectomy patients and quality of life in patients following gastric resection for gastric malignancy

Patient Information Sheet

INVITATION:

You are invited to participate in the study, because you are having a surgical procedure in General Surgery Department at CMC Hospital, Vellore, and your doctor has determined that you may be eligible for stool elastase testing for the study and assessment of quality of life following surgery.

PURPOSE OF RESEARCH:

Gastrectomy for gastric cancer is a major procedure causing significant morbidity to the patient and affects quality of life. One of the major problems following gastrectomy surgery is the malabsorption and weight loss caused by lipid malabsorption which in turn causes malabsorption of essential nutrients from the diet. One of the reasons for lipid malabsorption is pancreatic enzyme deficiency caused by the surgical procedure and the bypass reconstruction. This study aims to establish exocrine pancreatic deficiency following gastrectomy and assess the quality of life following gastric resection.

For research purposes, we would like you to give a stool sample for testing (if needed) and fill up a questionnaire. In addition, we will collect information about your diagnosis and treatment from your medical records.

Your decision whether or not to participate is entirely voluntary will not prejudice you or your medical care and your surgical procedure. Please ask any questions about anything you do not understand, before you decide to or not to participate in this study. If you decide not to participate, the health care provided to you by the Surgery III unit or any other department at the Christian Medical College, will not be affected in any way.

Are there any benefits to the study participants?

Although you are not expected to benefit directly from participating in this study, you may make a significant contribution to the understanding of exocrine pancreatic deficiency following gastrectomy and quality of life following gastric resection. This information might help to alter or supplement medications and enzymes to patients following such procedures which can significantly decrease morbidity and help in improving the quality of life of gastrectomy patients.

Will the participant be paid for the participation?

You will not be paid for your participation in this study.

Are there any side effects or risks to the participant?

There are no physical risks to you from your participation in this study. Every effort will be made to keep your identity and information confidential. Your treatment would be the same irrespective of whether you are part of the study or not.

How will the participants privacy be protected and who will use the health information of the participants?

By agreeing to participate in this study, you provide authorisation for the researchers to your health information for research. Your treating doctor and the researchers will do everything possible to keep your medical information confidential. The information will be stored in a password protected computer at the Surgery III-unit office in Paul Brand Building at CMC hospital, Vellore.

Is my permission voluntary and may I change my mind?

Your permission is voluntary. In case you decide not to participate now, or if you decide to withdraw your participation in any point in the future, this decision will not influence or affect the further treatment that you receive from any of the departments of the Christian Medical College, Vellore.

If I have additional questions, whom should I contact?

Please take as much time as you need to think over whether or not you wish to participate. If you have any questions about this study, please contact Dr. Rajeevan.P.S in the Department of Surgery, Paul Brand Building (2nd floor), or by phone 08870427408 / 04162282079 (8 am to 4.30 pm)

Can I keep this information sheet for my reference?

This information sheet is to be kept by you after you have consented to participate in this project by signing the attached informed consent form.

পোস্ট গ◻স্ট্রেক্টোমী রোগী ও রোগীদের জীবন মান গ্যাস্ট্রিক গ্রাবল্য অধ্যয়নের জন্য গ্যাস্ট্রিক রিজেক্শন নিম্নলিখিত মধ্যে এন্জ◻ক্রাইন অ্যাপায় অগ্রভূপতা

রোগীর তথ্য পত্রক

আমন্ত্রণ:

আপনি পোস্ট গ◻স্ট্রেক্টোমী রোগী ও রোগীদের জীবন মান গ্যাস্ট্রিক গ্রাবল্য অধ্যয়নের জন্য গ্যাস্ট্রিক রিজেক্শন নিম্নলিখিত মধ্যে Exocrine অ্যাপায় অগ্রভূপতা অংশগ্রহণের আমন্ত্রণ জানানো হয়, কারণ আপনি সিএমসি হাসপাতালে, ভেলোরে, এবং আপনার ডাক্তার এ তৃতীয় ইউনিট সার্জারিতে একটি অস্ত্রোপচার পদ্ধতি ভুগেন নির্ধারিত হয়েছে আপনি অস্ত্রোপচারের পর অধ্যয়ন এবং জীবন মান মূল্যায়নের জন্য চৌকি ইপাপেটস পরীক্ষার জন্য যোগ্য হতে পারে.

গবেষণার উদ্দেশ্য:

গ্যাস্ট্রিক ক্যান্সারের জন্য গ◻স্ট্রেক্টোমী রোগীকে উল্লেখযোগ্য অসুস্থতা মটাচ্ছে একটি প্রধান পদ্ধতি এবং জীবন মান প্রভাবিত. গ◻স্ট্রেক্টোমী অস্ত্রোপচারের পর প্রধান সমস্যা এক পিণ্ডিড মলশুল্পথান দ্বারা সৃষ্ট মলশুল্পথান এবং ওজন কমানোর যা গালাক্টেনে ডায়োটিং থেকে অপরিহার্য পুষ্টির মলশুল্পথান মটাল. পিণ্ডিড মলশুল্পথান অন্যতম কারণ অ্যাপায় এনজাইম অস্ত্রোপচার পদ্ধতি এবং বাইপাস পুনর্গঠন দ্বারা সৃষ্ট মাটাতি হয়. এই গবেষণায় এন্জ◻ক্রাইন অ্যাপায়ের অভাব নিম্নলিখিত গ◻স্ট্রেক্টোমী প্রতিষ্ঠা এবং গ্যাস্ট্রিক রিজেক্শন নিম্নলিখিত জীবন মানের মূল্যায়ণ করার লক্ষ্যে কাজ করে.

গবেষণা কাজের জন্য, আমরা পরীক্ষামূলক (প্রয়োজন হলে) একটি চৌকি নমুনা দিতে এবং একটি প্রশ্নমালা পূরণ করতে আপনি চাই. উপরন্তু, আমরা আপনার রোগ নির্ণয় এবং আপনার মেডিকেল রেকর্ড থেকে চিকিত্সা সম্পর্কে তথ্য সংগ্রহ করা হবে.

আপনার সিদ্ধান্ত কিনা বা না অংশগ্রহণের আপনি অথবা আপনার চিকিৎসা এবং আপনার অস্ত্রোপচার পদ্ধতি ক্ষুণ্ণ করা হবে না সম্পূর্ণরূপে স্বেচ্ছাসেবামূলক. , আপনি বুঝতে পারছেন না কোন বিষয়ে কোন প্রশ্ন জিজ্ঞাসা করুন আগে আপনি এই গবেষণায় অংশগ্রহণের জন্য বা না করার সিদ্ধান্ত নিতে. যদি আপনি অংশগ্রহণ না করার সিদ্ধান্ত নিতে পারেন, স্বাস্থ্য সার্জারী তৃতীয় একক বা খ্রিস্টান মেডিকেল কলেজে অন্য কোন বিভাগের দ্বারা আপনাকে সরবরাহিত মন্দ, অন্য কোন উপায়ে প্রভাবিত হবে না.

সেখানে গবেষণায় অংশগ্রহণকারী কোনো সুবিধা কি?

আপনি এই গবেষণায় অংশগ্রহণ থেকে সরাসরি উপকৃত হবে বলে আশা করা হয় না যদিও, আপনি গ◻স্ট্রেক্টোমী এবং গ্যাস্ট্রিক রিজেক্শন নিম্নলিখিত জীবনের মান নিম্নলিখিত এন্জ◻ক্রাইন অ্যাপায়ের অভাব বোঝা উল্লেখযোগ্য অবদান করতে পারে. এই তথ্য পরিবর্তন বা এই ধরনের পদ্ধতির যা উল্লেখযোগ্যভাবে অসুস্থতা হ্রাস এবং গ◻স্ট্রেক্টোমী রোগীদের জীবন মান উন্নতিতে সাহায্য করতে পারেন নিম্নলিখিত রোগীদের ঔষধ এবং এনজাইম সম্পূরক সাহায্য করতে পারে.

অংশগ্রহণকারী অংশগ্রহণের জন্য অর্থ প্রদান করা হবে?

আপনি এই গবেষণায় আপনার অংশগ্রহণের জন্য অর্থ প্রদান করা হবে না.

কোন পার্শ্ব প্রতিক্রিয়া বা অংশগ্রহণকারী ঝুঁকি আছে?

এই গবেষণায় আপনার অংশগ্রহণ থেকে আপনি কোন শারীরিক ঝুঁকি আছে. প্রতিটি প্রচেষ্টা আপনার পরিচয় এবং তথ্য গোপন রাখার ব্যবস্থা করা হবে.

কিভাবে অংশগ্রহণকারীদের গোপনীয়তা রক্ষা করা হবে এবং যারা অংশগ্রহণকারীদের স্বাস্থ্য তথ্য ব্যবহার করবে?

এই গবেষণায় অংশগ্রহণের জন্য সম্মত হয়ে আপনি গবেষণার জন্য আপনার স্বাস্থ্য তথ্য গবেষকদের জন্য অনুমোদন প্রদান. আপনার চিকিৎসকের এবং গবেষকরা আপনার চিকিৎসা তথ্য গোপন রাখা সম্ভব হবে না. তথ্য সিএমসি হাসপাতালে, ভেলোর গল ব্র্যান্ড বিল্ডিং সার্জারী তৃতীয় ইউনিট কার্যালয়ে এক পাসওয়ার্ড সুরক্ষিত কম্পিউটারে সংরক্ষণ করা হবে.

আমার অনুমতি স্বেচ্ছাসেবামূলক এবং আমি আমার মন পরিবর্তন করতে পারে?

আপনার অনুমতি স্বেচ্ছাসেবামূলক. যদি আপনি এখন অংশ না নেওয়ার সিদ্ধান্ত নেন, অথবা আপনি ভবিষ্যতে যে কোনো স্থানে আপনার অংশগ্রহণ প্রত্যাহার করার সিদ্ধান্ত নেন, তাহলে এই সিদ্ধান্ত প্রভাবিত বা আরও চিকিত্সার আপনি ক্রিশ্চান মেডিকেল কলেজ, ভেলোর বিভাগের কোনো কাদ থেকে যে কোনো প্রভাব পড়বে না.

আমি অতিরিক্ত প্রশ্ন থাকে, তাহলে আমি কার সাথে যোগাযোগ করা উচিত?

যেমন তোমাদের উপর কিনা বা না যদি আপনি অংশগ্রহণ করতে চান চিন্তা করতে হবে দয়া করে অনেক সময় লাগবে. আপনি এই গবেষণায় সম্পর্কে কোন প্রশ্ন থাকে, তাহলে সার্জারি বিভাগের, গল ব্র্যান্ড বিল্ডিং (2nd Floor), অথবা ফোন দ্বারা ডঃ Rajeevan.P.S যোগাযোগ করুন 08870427408/04162282079 (4.30 টা পর্যন্ত খোলা থাকে সকাল 8 টা)

আমি আমার রেকারোপের জন্য এই তথ্য পীটি রাখতে পারবেন?

এই তথ্য পীটি আপনি রাখা হবে পরে আপনি সংযুক্ত অবহিত সম্মতি ফর্ম সাইন করে এই প্রকল্পে অংশগ্রহণ করতে সম্মত হয়েছে.

गॅस्ट्रेक्टोमी के बाद एक्ज़ॉक्राइन पॅनक्रियास की कमी और पेट के कॅन्सर के लिए गॅस्ट्रिक रिज़ेक्शन किए जाने वाले रोगियों में जीवन की गुणवत्ता

जानकारी पत्र

आपको इस अध्ययन गॅस्ट्रेक्टोमी के बाद एक्ज़ॉक्राइन पॅनक्रियास की कमी और पेट के कॅन्सर के लिए गॅस्ट्रिक रिज़ेक्शन किए जाने वाले रोगियों में जीवन की गुणवत्ता में भाग लेने के लिए आमंत्रित हैं क्योंकि आप सी एम सी अस्पताल वेल्लोर के सर्जरी यूनिट तीन में सर्जरी करवाने जा रहे हैं और आपके डॉक्टर ने निर्धारित कर दिया हैं की आप इस अध्ययन के लिए पखाने में इलास्टेस एंजाइम परीक्षण और सर्जरी के बाद जीवन की गुवात्ता का मूल्यांकन करने के योग्य हैं.

अध्ययन का उद्देश्य:
गॅस्ट्रिक कॅन्सर के लिए गॅस्ट्रेक्टोमी एक बड़ी सर्जरी हैं जिससे रोगियों के जीवन की गुणवत्ता पर भारी असर पड़ता हैं. गॅस्ट्रेक्टोमी के बाद मलब्ज़ॉर्प्सन और वजन घटना एक बड़ी समस्या हैं जो लिपिड के मलब्ज़ॉर्प्सन के कारण होता हैं, जिससे खाने में से ज़रूरी पोशाक तत्व प्राप्त नहीं होते हैं. इस मलब्ज़ॉर्प्सन का एक कारण हैं पॅनक्रियास के एक एंजाइम की कमी हैं, जो सर्जरी और उससे संबंधित बाइपॅस के कारण होती हैं. इस अध्ययन का उद्देश्य गॅस्ट्रेक्टोमी के बाद एक्ज़ॉक्राइन पंक्रेआसए के कमी और रोगियों के जेवन की गुणवत्ता का मूल्यांकन केरना हैं.

अनुसंधान के उद्देश्य से हम चाहते हैं की आप एक पखाने का सॅंपल दें और एक प्रश्नावली को भी भरें. इसके अलावा हम आपके रोग और उसके इलाज के बारे में आपके मेडिकल रेकॉर्ड से जानकारी लेंगे.

आपका इस अध्ययन में भाग लेना पूरी तरह स्वेच्छिक हैं और भाग लेने से आपके स्वास्थ्य सेवा और चिकित्सा देखभाल पर कोई असर नहीं पड़ेगा. अध्ययन में भाग लेने या ना लेने का फ़ैसला करने के पहले अगर आपको कुछ समझ ना आए तो कृपया सवाल पूछिए. अगर आप भाग न लेने का निर्णय लेते हैं तो इससे सर्जरी तृतीय यूनिट या सी एम सी के और किसी विभाग के द्वारा आपको दी गई स्वास्थ्या सेवा प्रभावित नहीं होगी.

अध्ययन में भाग लेने वालों को क्या लाभ होगा?
इस अध्ययन में भाग लेने से सीधे आपको भले आपको कोई लाभ नहीं होगा पर आप गास्टरेक्तोमी के बाद एक्ज़ॉक्राइन पॅनक्रियास की कमी की समझ में महत्वपूर्ण योगदान देंगे. इस जानकारी से इस सर्जरी करवाने वाले रोगियों की दवाइंया और एंजाइम को बदलने या बढ़ाने में मदद मिल सकती हैं जिससे इन रोगियों की जीवन गुणवत्ता में सुधार आएगा.

प्रतिभागी को भाग लेने के लिए भुगतान किया जाएगा?
आपके इस अध्ययन में भाग लेने के लिए भुगतान नहीं किया जाएगा.

प्रतिभागी को कोई साइड एफेक्ट या ख़तरा हैं?

इस अध्ययन में भाग एनए से आपको कोई शारीरिक हानि नहीं पहुचेगी. आपकी पहचान आर जानकारी को गोपनीय रखने का हर एक प्रयास किया जाएगा.

प्रतिभागियों की पहचान कैसे गोपनीय रखी जाएगी और स्वास्थ्य जानकारी का उपयोग करने का अधिकार देते हैं. आपके डॉक्टर आर अध्ययन करने वाले आपकी मेडिकल जानकारी को गोपनीय रखने की हर संभव प्रयास करेंगे. यह जानकारी सी एम सी अस्पताल में पॉल ब्रांड बिल्डिंग में सर्जरी- तृतीय के कार्यालय में एक पासवर्ड से सुरक्षित कंप्यूटर में रहेगी.

क्या मेरी अनुमति स्वेच्छिक है और मैं अपना फ़ैसला बदल सकता / सकती हूँ?
आपकी अनुमति स्वेच्छिक है. अगर आप भाग न लेने का फ़ैसला करते है तो इससे सी.एम. सी के किसी भी विभाग में आपका इलाज प्रभावित नहीं होगा.

अधिक जानकारी के लिए मैं किससे संपर्क करूँ?
सर्जरी विभाग, पॉल ब्रांड बिल्डिंग (2 मंजिल), में या फोन के द्वारा डॉ राजीवन .पी .स संपर्क कृपया 08870427408/04162282079 (4.30 PM पर पोस्टेड करने के लिए 8 बजे)

क्या मैं भविष्य स्नदर्भ के लिए यह जानकारी पत्र रख सकता / सकती हूँ?
यदि आप भाग लेने का फ़ैसला करते हैं तो सहमति पत्र पर्म अपने हस्ताक्षर करने के बाद उस जानकारी पत्र को अपने पास रखिए.

காஸ்ட்ரெக்டோமி(இரைப்பை அறுவை சிகிச்சை மேல்வரும் கணைய குறைபாடு உருவாக்குவதையும் இரைப்பை அறுவை சிகிச்சை மேல் வாழ்க்கை தரத்தை மதிப்பிட ஓர்ஆய்வு

பங்கேட்பாளர் தகவல் குறிப்பு தாள்

உங்களுக்கு ஒரு அழைப்பு

நீங்கள் ஆய்வில் பங்கேற்க உங்களை அழைக்கிறோம் . நீங்கள் வேலூர் கிறுத்துவ மருத்துவ கல்லூரி மருத்துவமனையின் மேல்கூடல் அறுவை சிகிச்சை பிரிவின் கீழ் வயிற்றில் அறுவை சிகிச்சை செய்ய உள்ளீர்கள். உங்கள் மருத்துவர் உங்களை மலம் எனஸ்டோமோசிஸ் சோதனைக்கு தகுதி இருக்கலாம் என்று நம்புகிறார்கள். நாங்கள் உங்கள் வாழ்க்கை தரத்தை பற்றி அறிய விரும்புகிறோம்.

ஆராய்ச்சி நோக்கம்

இரைப்பை அறுவை சிகிச்சை மேல்வரும் முக்கிய பிரச்சினைகள் ஒன்று உள்ளீர்ப்புக்கேடு மற்றும் எடை இழப்பு ஆகும். வித்தியாசமான உள்ளீர்ப்புக்கேடு காரணங்களில் ஒன்று கணைய என்சைம் குறைபாடு. இந்த ஆய்வு காஸ்ட்ரெக்டோமி(இரைப்பை அறுவை சிகிச்சை மேல்வரும்) மேல்வரும் வரப்பிரசாதமான கணைய குறைபாடு உருவாக்குவதையும் இரைப்பை அறுவை சிகிச்சை மேல் வாழ்க்கை தரத்தை மதிப்பிட நோக்கமாக கொண்டுள்ளது

ஆராய்ச்சி நோக்கங்களுக்காக , நீங்கள் மலம் மாதிரி கொடுத்து மற்றும் ஒரு கேள்வித்தாளை நிரப்ப விரும்புகிறோம். நாங்கள் உங்கள் மருத்துவ பதிவேடுகள் இருந்து உங்கள் நோய் கண்டறிதல் மற்றும் சிகிச்சை பற்றி தகவல்களை சேகரித்துக்கொள்ளுவோம்.

இந்த அறிவில் பங்கெடுக்க உங்கள் முடிவு முற்றிலும் தன்னார்வமானது. நீங்கள் இந்த ஆராய்ச்சியில் பங்கு கொள்ளவில்லை என்றாலும் உங்கள் மருத்துவ சிகிச்சையில் எந்த மாற்றமும் இருக்காது.

ஆய்வில் பங்கெடுப்பதால் என்ன நன்மைகள் உள்ளன?
இந்த ஆய்வில் கலந்து கொள்ளுவதால் உங்களுக்கு நேரடியாக எந்த நன்மைகளும் கிடையாது. ஆனாலும் காஸ்ட்ரெக்டோமி(இரைப்பை அறுவை சிகிச்சை மேல்வரும்) மேல்வரும் வரப்பிரசாதமான கணைய குறைபாடு உருவாக்குவதையும் இரைப்பை அறுவை சிகிச்சை மேல் வாழ்க்கை தரத்தையும் பற்றி அறிய உதவும்.

அறிவில் பங்கெடுப்பதற்கு பணம் கொடுக்கப்படுமா ?
அறிவில் பங்கெடுப்பதற்கு பணம் கொடுக்கப்படாது.

இந்த அறிவில் பங்கெடுப்பதால் எந்த பக்க விளைவுகள் அல்லது அபாயங்கள் உள்ளதா?
இந்த அறிவில் பங்கெடுப்பதால் உங்களுக்கு எந்த பக்க விளைவுகள் அல்லது அபாயங்கள் கிடையாது.

எப்படி பங்கேற்பாளர்கள் தனிமுறைமை பாதுகாக்கப்படும் ?
பங்கேட்பாளர் தகவல் அறுவை சிகிச்சை மூன்றாம் அதை அலுவலகத்தில் ஒரு கடவுச்சொல்லை பாதுகாக்கப்பட்ட கணினி சேமிக்கப்படும்.

என் அனுமதி தன்னார்வமானதா மற்றும் பின்னர் நான் அதில் பங்கெடுப்பதை பற்றிய என் மனதை மாற்றலாமா?
இந்த அதில் பங்கெடுக்க உங்கள் முடிவு முற்றிலும் தன்னார்வமானது. நீங்கள் இந்த ஆராய்ச்சியில் பங்கு கொள்ளவில்லை என்றாலும் உங்கள் மருத்துவ சிகிச்சையில் எந்த மாற்றமும் இருக்காது.

மேலும் விபரங்களுக்கு கீழ் கண்ட தொலைபேசி எண்ணை தொடர்பு கொள்ளவும்.
டாக்டர் ராஜீவன் பி எஸ் - 08870420408
04162282079 (8 am to 4.30 pm) ,

rajeevanps@gmail.com

தகவல் குறிப்புத்தாளை வைத்துக்குக் கொள்ளலாமா ?

ஆமாம், நீங்கள் இந்த தகவல் குறிப்புத்தாளை வைத்துக்குக் கொள்ளலாம்.

Appendix IV- Consent Sheet

Study Title: EXOCRINE PANCREAS INSUFFICIENCY IN GASTRECTOMY PATIENTS AND ASSESSMENT OF QUALITY OF LIFE FOLLOWING GASTRIC RESECTION FOR GASTRIC MALIGNANCY

Informed Consent form to participate in a research study

Study Number: _____

Subject's Initials: _____ Subject's Name: _____

Hospital Number: _____

Date of Birth / Age: _____

Address and Phone Number: _____

_____

Phone:_____

(i) I confirm that I have read and understood the information sheet dated _____ for the above study and have had the opportunity to ask questions. [ ]

(ii) I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. [ ]

(iii) I understand that the Ethics Committee and the regulatory authorities will not need my permission to look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the trial. I agree to this access. However, I understand that my identity will not be revealed in any information released to third parties or published. [ ]

(iv) I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s). [ ]

(v) I agree to take part in the above study. [ ]

Signature (or Thumb impression) of the Subject/Legally Acceptable

Date: _____/_____/_____

Signatory's Name: _____ :

Signature of the Investigator: _____

Date: _____/_____/_____

Study Investigator's Name: _____

Signature or thumb impression of the Witness: _____

Date: _____/_____/_____

Name & Address of the Witness: _____

পোস্ট গ্যাস্ট্রেক্টোমী রোগী ও রোগীদের জীবন মান গ্যাস্ট্রিক গ্রাবল্য অধ্যয়নের জন্য গ্যাস্ট্রিক রিজেকশন নিম্নলিখিত মধ্যে এন্ডোস্কোপিক অ্যাপ্রোচ অগ্রভূপতা

স্টাডি সংখ্যা: _____

সাবজেক্টের আদ্যক্ষর: _____ সাবজেক্টের নাম: _____

হাসপাতালের সংখ্যা: _____

জন্ম / বয়স তারিখ: _____

ঠিকানা ও ফোন নম্বর: _____

_____

_____

(ঝ) আমি নিশ্চিত করছি যে আমি পড়েছি এবং উপরে অধ্যয়নের জন্য তথ্য শীট তারিখের _____ বোঝা যায় এবং প্রশ্ন জিজ্ঞাসা করার সুযোগ ছিল.

(ঃ) আমি বুঝতে পারি যে গবেষণায় আমার অংশগ্রহণ স্বেচ্ছাসেবী এবং আমি কোন কারণ ছাড়াই যে কোন সময়ে উঠাতে, মুক্ত, আমার চিকিৎসা ছাড়া বা আইনগত অধিকার প্রভাবিত হচ্ছে.

(গ) আমি বুঝতে পারি যে ক্লিনিকাল ট্রায়াল এর পৃষ্ঠাপোষক, পৃষ্ঠাপোষক গ্রুপ কাজ অন্যদের, নীতিশাস্ত্র কমিটি ও নিয়ন্ত্রক কর্তৃপক্ষের বর্তমান গবেষণায় সম্মান এবং কোনও গবেষণায় আমার স্বাস্থ্য রেকর্ড তাকান আমার অনুমতির প্রয়োজন হবে না যে এটা সম্পর্ক পরিচালিত হতে পারে, এমনকি যদি আমি বিচার থেকে মুখ ফিরিয়ে নিন. আমি এই অ্যাক্সেস করতে সম্মত হন. যাইহোক, আমি বুঝতে পারি যে আমার পরিচয় তৃতীয় গ্রুপের কাছে মুক্তি বা প্রকাশিত কোনো তথ্য প্রকাশ করা হবে না.

(ঈ) আমি প্রদত্ত এমন একটি ব্যবহার শুধুমাত্র বৈজ্ঞানিক উদ্দেশ্য (গুলি) জন্য কোনো তথ্য বা ফলাফল এই গবেষণা থেকে ব্যবহার সীমিত করতে সম্মত হন.

(ঙ) আমি উপরে গবেষণায় অংশ নিতে সম্মত হন.

স্বাক্ষর / টিপসই (অংশগ্রাহী)

তারিখ

নাম

স্বাক্ষর (গবেষক)

তারিখ

নাম

স্বাক্ষর (সাক্ষী)

তারিখ

নাম

अध्ययनशीर्षक
गॅस्ट्रेक्टोमीरोगियोंमें अग्नाशयसहि स्राव की कमी और गॅस्ट्रिकरिज़ेक्शनके बाद जीवन की गुणवत्ताका आंकलन

सूचितसहमतिफार्म एक शोधअध्ययनमें भाग लेने के लिए
अध्ययनसंख्या_____

विषयके पहले अक्षर_____ विषयका नाम_____
अस्पतालसंख्या_____
जन्म/ आयुदिनांक_____
पता और फोन नंबर_____
_____
_____

(i) मैं इस बात की पुष्टि करता करतीहूँ कि मैंने ऊपर के अध्ययनके लिए सूचनापत्र पढ़ा और समझाहै और मुझे सवालपूछने का अवसरमिलाहै। [ ]

(ii) मैं समझताहूँ कि इस अध्ययनमें मेरी भागीदारीस्वेच्छिकहै और मैं कोई भी कारण दिए बिना अध्ययनसे भागीदारी किसीभी समय वापस लेने के लिए आज़ादहूँ, इसकामेरी चिकित्सा देखभाल या कानूनीअधिकारपर कोई प्रभाव नहीं होगा [ ]

(iii) मैं समझताहूँ कि आचार समितिऔर नियामकअधिकारियोंको वर्तमानअध्ययनके संबंधऔर किसीभी आगे अनुसंधानके क्षेत्र में अपने स्वास्थ्यके रिकॉर्डको देखने के लिए मेरी अनुमति की जरूरतनहीं होगी इस सूचनाका प्रयोगवर्तमानऔर भविष्यमें किया जा सकताहै भले ही मैं अध्ययनसे भागीदारीवापस ले लूँ, हालांकि मैं समझताहूँ कि मेरी पहचानतीसरे पक्ष के लिए जारी या प्रकाशित नहीं किया जाएगा।[ ]

(iv) मैं सहमतहूँ की इस अनुसंधानसे सम्बंधितजानकारीका प्रयोगभविष्यके किसीभी डेटा या परिणामका इस्तेमालकर सकतेहै, इस तरह प्रदानअध्ययनकेवल वैज्ञानिकउद्देश्य के लिए प्रयोग किया जाना चाहिए [ ]

(v) मैं उपर दिए गये अनुसंधानमें भाग लेने के लिए सहमतहूँ. []

हस्ताक्षरया अंगूठेका निशान(विषय/ कानूनीतौर पर स्वीकार्य

तारीख____/____/_____
हस्ताक्षरकर्त्ताका नाम_____

अन्वेषकका हस्ताक्षर_____
तारीख____/____/_____
अध्ययनजांचकर्त्ताका नाम_____

गवाहका हस्ताक्षरया अंगूठेका निशान_____
तारीख____/____/_____
नाम व गवाहका पता_____

காஸ்ட்ரெக்டோமி(இரைப்பை அறுவை சிகிச்சை பின்வரும் கணைய குறைபாடு உருவாக்குவதையும் இரைப்பை அறுவை சிகிச்சை பின் வாழ்க்கை தரத்தை மதிப்பிட ஓர்ஆய்வு

ஒப்புதல் ஆவணம்

தேதி

ஆய்வு எண் :   மருத்துவமனையில் எண்:

முதன்மை ஆய்வாளர் : பி எஸ் ராஜுவேன்

பங்கேட்பாளர் பெயர்:

பிறந்த தேதி / வயது :

முகவரி மற்றும் தொலைபேசி எண்:

இந்த ஆய்வில் பங்கு பெறுவோர் தொடர்பான அனைத்துத் தகவல்களையும் நான் படித்தும், படிக்கக் கேட்டும் தெளிவாக தெரிந்து கொண்டேன். இந்த அபுவில் எனது பங்கு குறித்து எனது அனைத்துக் கேள்விகளுக்கும் ஆய்வாளரால் திருப்திகரமாக பதிலளிக்கப்பட்டது.   (ஆம் / இல்லை)

இந்த ஆய்வில் நான் பங்கெட்பது தன்னார்வமானது; இதில் இருந்து எந்த காரணமும் இல்லாமல், எனது மருத்துவ சிகிச்சை, சட்ட உரிமைகளுக்கு பாதகம் இல்லாமல் எந்த நேரத்திலும் விலகிக் கொள்ளலாம் என்று புரிந்து கொண்டேன்.   (ஆம் / இல்லை)

நான் இந்த ஆய்வில் இருந்து விலகிக் கொண்டாலும் எனது ஆய்வாளரும், நெறி முறைகள் குழுவும் என்னுடைய சுட்டோதைய சுகாதார பதிவுகளையும், வேறு எதிர்கால பதிவுகளையும் பார்க்க மற்றும் பயன் படுத்த என் அனுமதி தேவையில்லை என்று புரிந்து கொண்டேன். எனினும், வெளியிடப்படும் அல்லது மூன்றாவது நபருக்கு அளிக்கப்படும் எந்த தகவலிலும் என்னைப் பற்றிய அடையாளங்கள் அளிக்கப்படமாட்டாது என்பதையும்
புரிந்து கொண்டேன்.   (ஆம் / இல்லை)

இந்த ஆய்வில் இருந்து பெரும் எந்தத் தகவலும், முடிவுகளும்   அறிவியல் நோக்கம் மதுமே பயன்படும் என்பதால் , இதனை தடுக்கும் நோக்கம் எதும் இல்லை என ஒப்புக்கொள்கிறேன்
(ஆம் / இல்லை)

நான் இந்த ஆய்வில் பங்கேற்க ஒப்புகொள்கிறேன்.   (ஆம் / இல்லை)

பங்கேற்பாளர் கையொப்பம் அல்லது பெருவிரல் ரேகை

பங்கேற்பாளர் பெயர்:

தேதி :

ஆய்வாளர் கையொப்பம்

ஆய்வாளர் பெயர்:

தேதி :

சாட்சி கையொப்பம் :

சாட்சி பெயர்:

தேதி :

Appendix V – Data collection Proforma

EXOCRINE PANCREATIC INSUFFICIENCY FOLLOWING GASTRECTOMY PATIENTS AND QUALITY OF LIFE IN PATIENTS UNDERGOING GASTRIC RESECTION FOR MALIGNANCY

Data collection sheet

1. Questionnaire No:
2. Date:
3. Name:
4. Hospital No:
5. Age:
6. Phone Number:
7. Address:
8. Diagnosis:
9. Date of surgery:
10. Surgery: Subtotal gastrectomy / Total gastrectomy
11. Method of surgery: Laparoscopic /Laparoscopic assisted/ Open
12. Palliative/Curative: Palliative/Curative
13. Extent of lymphadenectomy:
14. Postop period at interview: ---------- months
15. Type of anastomosis:
16. Type of resection: No micro or macro metastasis/No macro metastasis/Macro metastasis
17. Complications:

a) Anastomotic leak: Y/N
b) Respiratory Failure: Y/N
c) Renal Failure: Y/N
d) Multiorgan failure: Y/N
e) Septic shock: Y/N
f) Chest infection: Y/N
g) Ileus: Y/N
h) Cardiac event: Y/N
i) Wound infection: Y/N

18. NeoAdjuvant therapy: Yes / No
    If yes, i) Chemotherapy - yes/no
    ii)Radiotherapy - yes/no
19. Adjuvant therapy: Yes / No
    If yes, i)Chemotherapy - yes/no
    ii)Radiotherapy - yes/no

Histology:

20. Tumor type:
21. Tumor differentiation:
22. Based on histology and surgical findings:

Curative resection - No micro or macro metastasis
Palliative resection - No macro metastasis / Macro metastasis

23. Postoperative staging: T_N_M_
24. Eligible for Stool elastase testing yes/ no

If yes,

a) Preoperative Stool elastase value ---------- (numerical value)
    Stool elastase Normal / Abnormal

If Abnormal, Moderate / severe

b) Preoperative Stool elastase value ---------- (numerical value)

Stool elastase Normal / Abnormal

If Abnormal, Moderate / severe

Appendix VI – Quality of Life questionnaire

QUALITY OF LIFE FOLLOWING GASTRECTOMY FOR CARCINOMA QUESTIONNAIRE

Patients sometimes report that they have the following symptoms or problems. Please indicate the extent to which you have experienced these symptoms or problems during the past week. Please answer by circling the number that best applies to you.

During the past week:	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
1. Have you had problems eating solid foods?	1	2	3	4
2. Have you had problems eating liquidised or soft foods?	1	2	3	4
3. Have you had problems drinking liquids?	1	2	3	4
4. Have you had discomfort when eating?	1	2	3	4
5. Have you had pain in your stomach area?	1	2	3	4
6. Have you had discomfort in your stomach area?	1	2	3	4
7. Did you have a bloated feeling in your abdomen?	1	2	3	4
8. Have you had trouble with acid or bile coming into your mouth?	1	2	3	4
9. Have you had acid indigestion or heartburn?	1	2	3	4
10. Have you had trouble with belching?	1	2	3	4
11. Have you felt full up too quickly after beginning to eat?	1	2	3	4
12. Have you had trouble enjoying your meals?	1	2	3	4
13. Has it taken you a long time to complete your meals?	1	2	3	4
14. Have you had trouble with eating in front of other people?	1	2	3	4
15. Do you have foul smelling stools?	1	2	3	4

16. How many times do you pass stools every day? _____

17. What is the consistency of stools? Loose stools / Normal consistency / Hard stools

18. How would you rate your overall health during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

19. How would you rate your overall quality of life during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

QUALITY OF LIFE FOLLOWING GASTRECTOMY FOR GASTRIC CARCINOMA QUESTIONNAIRE

রোগীরা কখনও কখনও ডাক্তার নির্দিষ্টিত উপসর্গ বা সমস্যার কথা মাথায় রাখেন। অনুগ্রহ করে আপনি এই উপসর্গ আপনার সমস্যাগুলি ঠিক কতটা অনুভব করেছিলেন। অনুগ্রহ করে আপনার ডাক্তার সাহেবের প্রশ্নমালা সমাধানের পাশে দাগ দিয়ে প্রতিটি প্রশ্নের উত্তর দিন।

গত এক সপ্তাহের মধ্যে:	একদমই না	অল্পদিন	অনেকদিন	প্রায় সবি ক্ষেত্রে
1. আপনি পেট ফাপার ফলে অসুবিধা ভোগ করেছিলেন কি?	1	2	3	4
2. আপনি ঢেকুরের বা পেটে খাদ্য ফেরে অসুবিধা ভোগ করেছিলেন কি?	1	2	3	4
3. আপনি পায়খানা পাশ করায় অসুবিধা ভোগ করেছিলেন কি?	1	2	3	4
4. আপনি পেটে খাওয়ার সময় অসুবি ভোগ করেছিলেন কি?	1	2	3	4
5. আপনি পেট ব্যথা অনুভব করেছিলেন কি?	1	2	3	4
6. আপনি পেট অসুবি অনুভব করেছিলেন কি?	1	2	3	4
7. আপনার পেট ফোলা বলে মনে হয়েছিল কি?	1	2	3	4
8. আপনার মুখে অম্লের অথবা পিত্ত জল আসার কারণে আপনি অসুবিধা অনুভব করেছিলেন কি?	1	2	3	4
9. আপনার মুখ শুকনো হয়েছিল কি অথবা গলা-মুখ জ্বালা করেছিল কি?	1	2	3	4
10. আপনার চোখের মুখের অসুবিধা হয়েছিল কি?	1	2	3	4
11. খাওয়া শুরু করার পর আপনার পেট খুব তাড়াতাড়ি ভরি হয়ে গেছে এমন বলে মনে হয়েছিল কি?	1	2	3	4
12. আপনার খাবার উপভোগ করতে অসুবিধা হয়েছিল কি?	1	2	3	4
13. আপনার খাবার শেষ করতে অনেক সময় লেগে গিয়েছিল কি?	1	2	3	4
14. অন্য অফিসের সাথেক খাবার পরে আপনার অসুবিধা হয়েছিল কি?	1	2	3	4
15. আপনিনাংপ্রয়োজনেরুদেরুমলআঘেকি	1	2	3	4
16 আপনিমলদৈনন্দিনকতবারযাওয়া	_____			
17. মলমূত্রতাকি	আপনারমল/ সাধারণমূত্রতা/ হার্ডমল			

QUALITY OF LIFE FOLLOWING GASTRECTOMY FOR GASTRIC CARCINOMA
QUESTIONNAIRE

৭. গত এক সপ্তাহে আপনার স্বাস্থ্য সাধারণভাবে যে রকম ছিল তা বোঝাতে কি ভাবে শ্রেণীভুক্ত করবেন?

1 2 3 4 5 6 7

(ভীষণ খারাপ) (অসাধারণ)

৮. গত এক সপ্তাহে আপনার দৈনন্দিন জীবন যাত্রার মান কেমন ছিল বোঝাতে কিভাবে স্কর দেবেন?

1 2 3 4 5 6 7

(ভীষণ খারাপ) (অসাধারণ)

QUALITY OF LIFE FOLLOWING GASTRECTOMY FOR GASTRIC CARCINOMA QUESTIONNAIRE

कभी-कभी मरीज़ निम्न लक्षणों या परेशानियों की शिकायत करते हैं। कृपया यह बताएं कि पिछले 7 दिनों के दौरान आपने किस हद तक इन लक्षणों या परेशानियों का अनुभव किया। कृपया उस संख्या पर गोला बनाकर जवाब दें, जो आप पर सबसे अच्छी तरह लागू होती हो।

पिछले 7 दिनों के दौरान	बिल्कुल नहीं	थोड़ा .सा	काफी	बहुत ज्यादा
1. क्याआपकोठोसखानाखानेमें परेशानीहुईथी?	1	2	3	4
2. क्या आपकोमसलाहुआ या नरम खानाखाने में परेशानीहुई थी?	1	2	3	4
3. क्याआपकोकुछपीनेमें तकलीफ़हुईथी?	1	2	3	4
4. क्याआपकोखातेसमयशारीरिकतकलीफ़होतीथी?	1	2	3	4
5. क्याआपकोपेटकेहिस्सेमें दर्दहुआ?	1	2	3	4
6. क्या आपकोअपने पेट के हिस्से में शारीरिकतकलीफ़होती थी?	1	2	3	4
7. क्याआपकोअपनापेटफूलाहुआमहसूसहोताथा?	1	2	3	4
8. क्याआपकोअपनेमुहमेंखट्टीडकारयापित्तआनेकी तकलीफ़होतीथी?	1	2	3	4
9. क्याआपकोबदहज़मीयासीनेमें जलनहोतीथी?	1	2	3	4
10. क्याआपकोडकारआनेकीपरेशानीहुई?	1	2	3	4
11. क्याआपकोऐसामहसूसहुआकीखानाशुरुकरनेकेबादआपका पेटबहुतजल्दीभरगया?	1	2	3	4
12. क्याआपकोभोजनका आनंदलेनेमें तकलीफ़हुईथी?	1	2	3	4
13. कयाआपकोभोजनखत्मकरनेमें ज़्यादासमयलगजाताथा?	1	2	3	4
14. क्यादूसरेलोगोंकेसामनेखानेमंआपकोकोईतकलीफ़होतीथी?	1	2	3	4
15. क्याआपकेमलमें बदबूहै?	1	2	3	4
16. आपकोएकदिनमेंकितनीबारपैखानाहोताहै?	_____			
17. आपकाकैसापैखनहोताहै? पतला/ सामान्य/ कड़ा				

18. पिछलेसप्ताहके अपनेपूर्ण स्वास्थ्यका मूल्यांकनकैसे करेंगे?

1	2	3	4	5	6	7
बहुतखराब						बहुतअच्छा

19. पिछलेसप्ताहके अपनेकुलजीवनस्तरकामूल्यांकनआपकैसेकरेंगे?

1	2	3	4	5	6	7
बहुतखराब						बहुतअच्छा

வாழ்க்கைத் தரம் கேள்விதாள்

நோயாளிகள் சிலநேரங்களில் கீழ்க்கண்ட அறிகுறிகள் அல்லது பிரச்சனைகளைத் தெரிவிப்பார்கள். இந்த அறிகுறிகள் அல்லது பிரச்சனைகளைக் கடந்த ஒரு வாரத்தில் எந்த அளவிற்கு நீங்கள் அனுபவித்தீர்கள் என்பதனை தயவு செய்து குறிப்பிடவும். உங்களுக்கு மிகவும் சரியாகப் பொருந்தும் எண்ணை தயவு செய்து வட்டமிட்டு விடையளிக்கவும்.

	கடந்த வாரத்தில்	முற்றிலும் இல்லை	சிறிது	அதிகம்	மிகவும் அதிகம்
1.	கெட்டியான உணவு உண்பதில் உங்களுக்குப் பிரச்சனை இருந்ததா?	1	2	3	4
2.	கூழாக்கப்பட்ட அல்லது மென்மையான உணவு உண்பதில் உங்களுக்குப் பிரச்சனை இருந்ததா?	1	2	3	4
3.	திரவமாக குடிப்பதில் உங்களுக்குப் பிரச்சனை இருந்ததா?	1	2	3	4
4.	சாப்பிடும் போது உங்களுக்கு கஷ்டம் இருந்ததா?	1	2	3	4
5.	வயிற்றுப் பகுதியில் உங்களுக்கு வலி இருந்ததா?	1	2	3	4
6.	வயிற்றுப் பகுதியில் உங்களுக்கு கஷ்டம் இருந்ததா?	1	2	3	4
7.	உங்களுக்கு வயிறு உப்புசமான உணர்வு இருந்ததா?	1	2	3	4
8.	புளிப்பும் அல்லது பித்தம் வாயில் வரும் தொல்லை உங்களுக்கு இருந்ததா?	1	2	3	4
9.	உங்களுக்கு அமில அஜீரணம் அல்லது நெஞ்செரிச்சல் இருந்ததா?	1	2	3	4
0.	ஏப்பத்தால் உங்களுக்குத் தொந்தரவு இருந்ததா?	1	2	3	4
1.	சாப்பிட ஆரம்பித்த பின் மிகச் சீக்கிரமாகவே வயிறு நிறைந்து விட்ட உணர்வு உங்களுக்கு இருந்ததா?	1	2	3	4
2.	உங்கள் உணவை விரும்பி சுவைத்து உண்பதில் உங்களுக்குப் பிரச்சனை இருந்ததா?	1	2	3	4
3.	உணவை உண்டு முடிக்க நீங்கள் அதிக நேரம் எடுத்துக்கொண்டீர்களா?	1	2	3	4
6.	மற்றவர்கள் முன் சாப்பிட உங்களுக்குப் பிரச்சனை இருந்ததா?	1	2	3	4
15)	உங்கள் மலம் துர்நாற்றம் உண்டா ?	1	2	3	4

16). நீங்கள் தினமும் மலம் எத்தனை முறை கழிப்பீர்கள் ______________________

17) மலம் நிலைத்தன்மை என்ன ? இளகிய மலம் / இயல்பு நிலைத்தன்மையும் / கட்டி மலம்

பின்வரும் கேள்விகளுக்கு 1லிருந்து 7 முடிய உள்ள எண்களில், உங்களது நிலைமைக்கு உச்ச அளவில் பொருந்தும் எண்ணைச் சுற்றி தயவு செய்து வட்டமிடவும்

கடந்த வாரத்தின் போது, பொதுவாக, உங்களுடைய <u>ஆரோக்கியத்தை</u> நீங்கள் எவ்வாறு மதிப்பீடு செய்வீர்கள்?

1 2 3 4 5 6 7

(மிக மோசம்) (பிரமாதம்)

கடந்த வாரத்தின் போது, பொதுவாக, உங்களுடைய <u>வாழ்க்கைத் தரத்தை</u> நீங்கள் எவ்வாறு மதிப்பீடு செய்வீர்கள்?

1 2 3 4 5 6 7

(மிக மோசம்) (பிரமாதம்)

Appendix VII – Data Entry Sheet – Excel Spreadsheet

D_n1	Gender	HOSPITAL	hosp	age	surgery	meth	res ec	lympha	anast	anast	reoper	neoadju	neoac	neoa	adju	adjuv	adjuv	com	hyper	asthm	COPD	Thyroi	CAD	time	preop	preop_	postop	postop	Study_c
1	1.00	7,90,203	G	61	1	3	2	3	1	2	2	2	1	1	2	1	2	2	#####	#####	#NULL!	#####	#####	102	2	103	2	144	2	1
2	1.00	8,55,671	G	53	1	3	2	3	1	2	2	2	#####	###	###	###	###	2	#####	#####	#NULL!	#####	#####	12	2	46	2	149	2	1
3	1.00	8,37,399	G	68	1	3	2	3	1	1	2	2	#####	###	###	###	###	2	#####	#####	#NULL!	#####	#####	31	1	365	1	113	2	1
4	1.00	8,23,374	G	58	1	3	2	3	1	2	2	2	#####	###	1	2	2	2	#####	#####	#NULL!	#####	#####	14	1	528	1	585	1	1
5	1.00	8,28,447	F	60	1	3	2	2	2	2	2	1	1	###	1	1	2	2	#####	#####	#NULL!	#####	#####	58	1	308	1	18	2	1
6	1.00	9,08,049	G	46	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	70	1	298	1	74	2	1
7	2.00	9,90,807	C	59	2	3	2	3	2	2	2	2	#####	###	1	1	2	1	2	2	1	2	2	81	1	531	1	452	1	1
8	2.00	8,37,315	G	62	2	3	2	3	1	2	2	2	#####	###	1	1	1	1	2	2	2	1	2	118	2	58	2	41	2	1
9	1.00	5,13,127		63	1	3	2	3	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	82	2	111	2	77	2	1
10	1.00	6,57,690	G	56	1	3	2	3	1	2	2	1	1	2	1	2	2	2	#####	#####	#NULL!	#####	#####	154	2	115	2	132	2	1
11	1.00	6,02,381	G	49	2	3	2	3	1	1	2	1	1	1	2	1	2	2	#####	#####	#NULL!	#####	#####	113	2	162	2	182	2	1
12	2.00	7,74,580	G	38	1	3	2	3	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	116	1	549	1	203	1	1
13	1.00	5,40,980	G	30	1	3	1	2	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	131	1	439	1	99	2	1
14	1.00	7,38,726	G	57	1	3	2	3	1	2	2	2	#####	###	2	###	###	2	#####	#####	#NULL!	#####	#####	10	1	429	1	359	1	1
15	2.00	7,12,441	G	42	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	186	2	14	2	232	1	1
16	2.00	7,33,015	G	60	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	11	2	153	2	27	2	1
17	1.00	6,49,546	G	52	1	3	2	3	2	2	2	1	1	2	1	1	1	1	2	2	2	1	2	###	1	258	1	#####	#####	2
18	1.00	7,15,970	G	36	1	3	2	3	1	2	2	1	1	2	1	1	1	2	#####	#####	#NULL!	#####	#####	87	2	22	2	71	2	1
19	1.00	54,759	D	51	1	3	2	1	1	2	2	2	#####	###	1	1	2	1	2	2	2	1	2	235	1	635	1	206	1	1
20	1.00	7,61,143	C	70	1	3	2	3	1	1	1	1	1	2	1	1	1	2	#####	#####	#NULL!	#####	#####	96	2	120	2	538	1	1
21	2.00	6,926	H	49	1	1	2	3	2	2	2	2	#####	###	1	1	2	1	2	2	2	1	#####	88	2	165	2	431	1	1
22	1.00	5,90,898	C	67	1	3	2	3	2	2	2	2	#####	###	###	###	###	2	#####	#####	#NULL!	#####	#####	31	2	111	2	323	1	1
23	2.00	39,012	H	45	1	3	2	3	1	2	2	2	#####	###	1	1	1	1	2	2	2	1	2	277	1	449	1	279	1	1
24	1.00	9,38,809	G	39	1	3	2	3	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	235	1	635	1	206	1	1
25	1.00	9,35,129	G	56	1	3	1	3	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	28	1	646	1	623	1	1
26	2.00	9,10,955	G	49	2	3	2	2	2	2	2	1	1	2	1	1	1	2	#####	#####	#NULL!	#####	#####	98	1	271	1	255	1	1
27	2.00	9,79,817	G	32	2	3	2	3	2	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	88	1	626	1	521	1	1
28	2.00	9,56,567	G	48	2	3	2	3	2	2	2	1	1	2	1	2	1	2	#####	#####	#NULL!	#####	#####	54	1	581	1	431	1	1
29	1.00	9,41,702	G	45	1	3	2	3	1	1	1	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	18	1	554	1	369	1	1
30	2.00	9,77,789	G	56	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	1	521	1	#####	######	2
31	1.00	8,45,152	G	52	2	3	2	3	2	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	14	1	520	1	413	1	1
32	2.00	7,77,939	G	43	1	3	2	3	1	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	23	1	317	1	124	2	1
33	1.00	9,86,114	F	62	1	3	1	3	1	2	2	2	#####	###	1	1	2	1	1	2	2	2	#####	224	2	68	2	98	2	1
34	1.00	6,09,358	G	59	1	3	2	2	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	2	195	2	#####	######	2
35	1.00	5,43,917	G	65	1	3	2	3	1	1	1	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	2	126	2	#####	######	2
36	1.00	2,90,247	H	42	1	3	2	2	2	2	2	1	1	2	2	###	###	2	#####	#####	#NULL!	#####	#####	###	2	26	2	#####	######	2
37	1.00	9,61,847	G	78	1	3	1	1	1	2	2	2	#####	###	2	###	###	1	1	1	2	2	2	###	2	390	1	#####	######	2
38	1.00	9,90,683	G	56	1	3	2	2	2	2	2	2	#####	###	2	###	###	1	1	2	1	2	2	###	2	252	1	#####	######	2
39	2.00	9,32,400	G	46	1	3	2	3	1	2	2	2	#####	###	1	###	###	2	#####	#####	#NULL!	#####	#####	###	2	546	1	#####	######	2
40	2.00	9,96,451	G	31	1	3	2	3	1	2	2	2	#####	###	1	###	###	2	#####	#####	#NULL!	#####	#####	351	1	559	1	158	2	1
41	1.00	9,98,306	G	56	1	3	2	3	2	1	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	1	758	1	#####	######	2
42	1.00	9,97,792	G	48	1	3	2	3	2	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	281	2	144	2	135	2	1
43	2.00	50,685	G	55	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	2	63	2	#####	######	2
44	1.00	8,10,975	G	46	1	3	2	3	1	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	342	1	537	1	201	1	1
45	1.00	9,10,503	G	59	2	3	2	3	2	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	193	1	221	1	447	1	1
46	2.00	9,33,617	G	56	2	2	2	2	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	1	557	1	#####	######	2
47	2.00	33,594	H	41	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	1	205	1	#####	######	2
48	2.00	20,894	H	57	2	1	2	3	2	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	253	2	141	2	159	2	1
49	1.00	1,31,932	H	55	2	3	1	1	1	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	###	1	484	1	#####	######	2
50	2.00	14,964	H	35	2	1	2	3	2	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	28	1	261	1	468	1	1
51	1.00	1,50,732	H	43	1	3	1	1	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	###	2	125	2	#####	######	2
52	1.00	9,82,138	G	60	2	1	2	3	2	2	2	1	1	2	1	1	1	2	#####	#####	#NULL!	#####	#####	18	1	264	1	182	2	1
53	1.00	1,26,928	H	55	1	3	2	3	1	2	2	2	#####	###	1	1	2	2	#####	#####	#NULL!	#####	#####	18	1	57	2	5	2	1
54	2.00	9,71,330	G	38	1	1	2	3	2	2	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	121	2	92	2	131	2	1
55	1.00	2,15,520	H	52	2	3	2	3	1	1	1	1	1	2	2	###	###	2	#####	#####	#NULL!	#####	#####	15	1	386	1	357	1	1
56	2.00	1,93,459	H	45	2	3	2	3	1	1	2	1	1	2	1	1	2	2	#####	#####	#NULL!	#####	#####	###	2	25	2	#####	######	2
57	1.00	1,87,816	H	65	1	3	2	3	1	2	2	2	#####	###	1	1	2	1	1	2	2	1	1	17	2	200	2	394	1	1
58	1.00	3,11,534	H	42	1	3	2	1	1	2	2	2	#####	###	1	1	1	2	#####	#####	#NULL!	#####	#####	###	2	549	1	308	1	1
59	1.00	9,17,510	F	54	1	3	2	1	1	1	1	2	#####	###	1	1	2	1	2	2	2	2	1	20	1	448	1	156	2	1
60	1.00	3,05,449	H	60	1	3	2	3	1	1	1	2	#####	###	1	1	2	1	2	2	1	2	2	27	1	291	1	55	2	1

HOSPITAL	HOS	AGE	GEN	YEAR	MON	GAS	METH	ANA	REOPE	NEOA	NEOAD	UPFRO	ADJCH	ADJR	DM	HTN	ASTH	CAD	COPD	THYROID	PROXI	DISTAL	RESECTI	T	N	M	ALIVE	DEAT	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
374369	F	57	1	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4A	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
350175	F	52	1	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
395951	F	65	1	2013	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
167338	F	43	2	2013	1	1	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	1	0	2	38	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
361959	F	45	2	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	34	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
375519	F	28	1	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	0	0	2	31	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
364914	F	45	2	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	2	37	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
370338	F	35	2	2013	1	2	3	1	2	2	2	1	1	1	2	2	2	2	2	2	1	1	1	4A	3A	0	2	20	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
378779	F	50	2	2013	1	1	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	4A	3B	0	2	32	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
378312	F	73	1	2013	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	3	#NUL	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
398319	F	48	2	2013	2	1	3	2	2	2	2	1	1	2	2	2	2	2	2	1	2	1	1	4A	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
391572	F	43	1	2013	2	1	3	2	2	2	2	1	1	2	2	2	2	2	2	1	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
262478	C	56	2	2013	2	2	1	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	2	1B	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
386046	F	51	1	2013	2	1	3	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
394501	F	61	1	2013	2	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	3	#NUL	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
395885	F	66	1	2013	2	2	3	2	2	2	2	1	1	2	2	2	2	1	2	1	1	2	2	2A	1	0	3	#NUL	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
404516	F	65	1	2013	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4A	3B	0	1	#NUL	1	1	1	1	2	2	2	1	1	1	1	1	2	2	2	2	2	5	5
418217	F	26	2	2013	3	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
322367	D	74	1	2013	3	2	3	2	2	2	2	1	2	2	1	1	2	1	2	2	2	2	2	1B	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
414354	F	40	1	2013	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4	0	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
425709	F	54	1	2013	3	1	3	2	2	2	2	1	1	2	2	2	2	1	2	2	1	2	2	4A	3B	0	2	25	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
431401	F	73	1	2013	3	1	3	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	4A	0	0	2	65	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
53421	D	60	2	2013	3	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	2	0	2	16	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
413042	F	39	1	2013	3	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	2	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
443054	F	62	1	2013	4	2	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	1	1	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
438571	F	53	1	2013	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	2	2	5	5
285245	F	64	1	2013	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
651967	D	74	1	2013	4	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	4A	2	0	2	40	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
427270	F	66	1	2013	4	1	3	2	2	2	2	1	1	2	2	1	2	1	2	2	2	2	1	4A	3A	0	2	35	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
447251	F	46	1	2013	4	2	3	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	3	2	0	2	20	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
464084	F	48	2	2013	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
751565	C	61	1	2013	6	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
600352	F	44	1	2013	6	2	3	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
487388	F	33	2	2013	6	1	3	2	2	2	2	1	1	2	1	2	2	2	2	1	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
489093	F	46	2	2013	6	1	3	2	1	2	2	1	1	1	2	2	2	2	2	2	2	2	1	3	3	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
435934	F	43	2	2013	6	2	3	2	2	2	2	1	1	2	1	2	2	1	2	2	2	2	1	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
523078	B	73	1	2013	7	2	3	2	2	2	2	1	1	2	2	1	1	1	1	2	2	2	2	2	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	2	5	5
602178	F	76	1	2013	7	1	2	2	2	2	2	1	2	2	2	2	1	2	1	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
484054	F	61	2	2013	7	2	3	1	1	2	2	1	2	2	1	1	2	2	2	2	2	2	1	3	0	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
605399	F	36	1	2013	7	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
609121	F	61	1	2013	7	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	2	23	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
612227	F	40	1	2013	7	2	3	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	4A	2	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
645355	F	46	1	2013	8	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
647669	f	50	1	2013	8	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4a	3a	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
589097		52	1	2013	8	1	3	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	4A	3B	0	2	8	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
616228	F	54	1	2013	8	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2B	0	0	2	20	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
668044	F	43	1	2013	9	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4	2	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
659263	F	53	2	2013	9	2	3	2	2	2	2	1	1	1	2	2	2	2	2	1	2	1	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
657962	F	33	1	2013	9	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3B	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	3	1	2	1	1	2	2	6	6
641527	F	55	1	2013	9	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	1	0	2	49	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
601947	F	62	1	2013	9	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3B	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
650166	F	39	1	2013	9	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	2	20	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
654235	F	37	2	2013	9	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	1	0	2	17	#N	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NU	#NULL	#NULL	#NULL	#NULL	#NULL	#NUL	#NUL	#NUL	#NUL	#NUL
689606	F	54	1	2013	10	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
663562	F	34	2	2013	10	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
680883	F	28	2	2013	10	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
697820	F	36	1	2013	10	2	3	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
363445	F	29	1	2013	10	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	1	1	4	0	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
634842	F	52	1	2013	10	1	2	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5

667948	F	37	1	2013	10	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2B	1	0	2	30	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
654636	F	73	2	2013	10	2	3	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	2	15	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
702951	F	62	2	2013	10	2	3	2	1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	3	0	0	2	13	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
679539	F	63	2	2013	10	1	3	2	2	2	2	1	1	2	1	2	2	2	2	2	1	1	1	4A	3	0	2	12	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
684829	F	45	2	2013	10	1	3	1	1	2	2	1	2	2	2	2	2	2	2	2	1	2	2	4A	3B	0	2	2	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
674713	F	55	1	2013	10	2	3	2	2	2	2	1	1	2	2	1	2	1	2	2	2	1	2	4A	3B	1	2	17	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
655001	F	60	1	2013	10	2	3	2	2	2	2	1	2	2	1	2	2	2	2	2	2	1	2	4A	3A	0	2	18	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
659536	F	60	1	2013	10	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	2	21	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
714077	F	47	2	2013	11	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
714889	F	52	1	2013	11	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4	3A	0	2	34	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
725555	F	61	1	2013	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	1	0	2	55	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
685467	F	65	1	2013	11	2	3	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	0	0	2	30	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
722201	F	43	1	2013	12	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2	3A	0	2	17	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
909809	C	47	2	2013	12	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	2	30	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
724548	F	34	2	2013	12	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	2	33	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
720511	F	63	1	2013	12	1	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	1	4A	3B	0	2	16	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
744568	F	57	1	2013	12	2	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2	3B	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
727659	F	57	1	2013	12	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3B	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
768496	F	71	1	2014	1	1	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	2	2	2	2	2	1	1	1	1	1	1	2	2	2	5	5
774528	F	30	2	2014	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
507194	F	76	1	2014	1	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1B	1	0	2	28	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
785979	F	57	1	2014	2	1	3	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	4A	3B	0	1	#NUL	1	1	1	2	3	3	1	1	1	1	1	1	1	1	3	1	1	4	4
798520	F	54	1	2014	2	1	3	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
796338	F	39	1	2014	3	2	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
509625	F	81	1	2014	3	2	3	2	2	2	2	1	2	2	2	2	1	2	1	2	2	2	2	2	0	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	3	2	2	2	1	2	2	5	5
802380	F	57	1	2014	3	2	3	2	2	2	2	1	1	2	2	1	1	2	2	2	2	2	2	4A	0	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	2	2	2	2	2	1	2	6	6
895645	D	53	2	2014	3	2	3	2	2	2	2	1	1	2	2	1	2	1	2	1	2	1	1	4A	3B	0	2	9	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
810716	F	54	1	2014	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
837662	F	40	2	2014	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	2	5	5
813601	F	39	2	2014	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
828655	F	59	1	2014	4	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
901605	F	36	2	2014	4	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3B	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
805003	F	53	1	2014	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	12	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
41700	D	55	1	2014	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	2	3	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
904376	F	47	1	2014	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	5	5
852802	F	48	2	2014	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
802567	F	65	2	2014	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1B	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	7	7
853450	F	65	1	2014	6	1	3	1	1	2	2	1	2	2	2	1	2	1	2	2	2	2	2	1B	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	6
861118	F	27	2	2014	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5
864215	F	53	2	2014	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	7	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
880410	F	65	1	2014	6	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	0	2	16	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
869940	F	65	1	2014	6	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
893690	F	47	2	2014	7	2	3	1	2	2	2	1	1	2	2	2	1	2	1	2	2	2	2	2B	0	0	1	#NUL	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	3	2	7	7
896317	F	54	1	2014	7	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	1	4A	2	0	2	22	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
36035	G	28	1	2014	8	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	1	1	3	3	1	2	2	5	5
8656	G	78	1	2014	8	2	3	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	1B	0	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
18874	G	64	1	2014	8	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	3	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
880395	F	64	1	2014	8	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4A	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
2488	G	48	2	2014	8	1	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	1	1	4A	3A	0	2	31	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
36095	G	65	1	2014	9	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	2	4A	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
61111	G	61	2	2014	9	2	3	2	2	2	2	1	1	1	2	2	2	2	2	1	2	2	1	3	2	1	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
41342	G	54	1	2014	9	2	3	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
36652	G	62	1	2014	9	2	3	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	1	4A	3A	0	2	4	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
27131	G	57	2	2014	9	2	3	1	1	2	2	1	1	1	2	1	2	2	2	2	2	2	2	3	3A	0	2	39	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
64317	G	48	1	2014	10	2	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
62780	G	56	1	2014	10	2	3	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
34418	G	28	2	2014	10	2	3	2	2	1	2	2	1	1	2	2	2	2	2	2	2	1	2	4A	2	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
33132	G	42	2	2014	10	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
59285	G	62	1	2014	10	2	3	1	1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	4A	1	0	2	32	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
70647	G	60	1	2014	11	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5

77842	G	44	1	2014	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
928173	F	65	1	2014	11	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	0	0	2	22	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
932828	F	45	1	2014	12	2	3	2	2	2	2	1	2	2	2	2	1	2	1	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
929669	F	35	1	2014	12	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
111616	G	54	1	2014	12	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	6	6
95244	G	34	1	2014	12	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	4A	1	1	2	14	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
91003	G	39	1	2014	12	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
34951	G	65	1	2014	10	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1B	0	0	2	19	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
942198	F	84	2	2015	1	2	3	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2	2	3	2	0	1	#NUL	3	2	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	5	5
932001	F	68	1	2015	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	7	7
120084	G	46	2	2015	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	1	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
127611	G	70	1	2015	1	2	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
132021	G	59	1	2015	2	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	1	2	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	2	2	7	7
132385	G	35	2	2015	2	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	1	2	4A	0	0	1	#NUL	1	1	1	2	3	3	1	1	2	2	2	1	1	1	1	1	2	5	5
98385	G	44	2	2015	2	1	3	2	2	1	2	2	1	2	1	1	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
85961	G	34	1	2015	2	1	3	2	2	1	2	2	1	1	2	2	1	2	2	2	2	2	2	4A	2	0	2	24	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
131975	G	67	1	2015	2	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	2	19	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
153114	G	62	1	2015	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	0	1	#NUL	2	1	1	2	2	2	1	1	3	1	3	2	1	1	1	2	2	6	6
163422	`	52	1	2015	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
938289	F	60	2	2015	3	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
171189	G	67	1	2015	3	2	3	1	1	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	3	2	2	2	1	2	2	5	5
151102	G	57	2	2015	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	2	4A	0	0	2	5	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
190665	F	73	1	2015	3	2	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	4	0	0	2	1	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
162378	G	57	2	2015	3	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	4A	3A	0	2	26	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
143885	G	60	1	2015	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
154789	G	54	1	2015	3	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
196754	G	75	1	2015	4	2	3	2	2	2	2	1	2	2	2	1	2	1	2	2	2	2	2	3	3A	0	2	24	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
120287	G	58	1	2015	5	1	3	2	2	1	2	2	1	1	2	2	2	2	2	2	1	2	2	3	3	0	1	#NUL	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	5	5
130532	G	34	1	2015	5	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	2	1	2	2	1	2	2	2	1	1	1	1	1	2	5	5
942740	F	56	1	2015	5	1	3	2	2	1	2	2	1	1	2	2	2	1	2	2	2	2	2	4A	1	0	2	17	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
203164	G	49	2	2015	5	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
949977	H	64	2	2015	5	1	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	4A	3B	0	2	28	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
204590	G	50	1	2015	5	2	3	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	3	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
207691	G	42	1	2015	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	2	4A	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
727918		44	1	2015	6	2	3	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	2	1B	1	0	1	#NUL	1	1	1	2	3	2	1	1	1	3	3	1	2	1	1	2	2	5	5
425942	F	39	2	2015	6	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	2	2	5	5
210705	G	24	2	2015	6	1	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	0	0	2	26	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
257488	G	57	1	2015	7	2	3	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
173977	G	47	1	2015	7	2	3	2	2	1	2	2	1	2	1	1	2	2	2	2	2	2	2	2	1	0	2	32	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
347956	C	52	1	2015	7	2	3	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3	1	0	2	15	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
221153	G	70	2	2015	7	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	0	2	15	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
250109	G	53	1	2015	7	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	19	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
412294	B	76	1	2015	7	2	3	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2	2	1B	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
259327	G	69	2	2015	8	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	2	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
244716	G	59	2	2015	8	2	3	2	2	2	2	1	1	2	1	1	2	2	2	2	1	1	1	3	1	0	2	15	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
275849	G	38	1	2015	8	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	1	2	4	3B	0	2	30	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
228499	G	45	2	2015	8	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	1	2	2	4A	1	0	2	15	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
226454	G	54	2	2015	8	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
279057	C	57	1	2015	8	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	1	1	4A	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
266639	G	58	2	2015	9	1	3	2	1	2	2	1	1	2	1	1	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
282541	G	73	1	2015	9	2	3	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
280381	G	67	1	2015	9	2	3	1	1	2	2	1	1	2	2	2	1	2	1	2	2	2	1	4A	3A	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
931430	D	50	2	2015	9	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	1	0	2	30	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
885997	A	64	1	2015	9	1	3	2	2	1	2	2	1	1	2	2	2	2	2	2	2	2	1	3A	3A	0	2	26	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
277207	G	67	1	2015	10	2	3	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	4A	1	0	2	29	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
961363	F	40	1	2015	10	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	3	3B	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
338242	G	36	2	2015	10	2	3	2	2	2	2	1	1	1	2	1	2	2	2	2	2	1	2	4A	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
345691	G	53	1	2015	11	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	2	1	1	2	1	1	2	5	5
340680	G	57	1	2015	11	2	3	2	2	2	2	1	1	1	1	1	2	1	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	7	7
77167	D	63	1	2015	11	2	3	2	2	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	2	6	6

359964	G	58	1	2015	11	2	3	2	2	2	2	1	2	2	1	2	2	2	2	2	1	2	2	4A	3A	0	2	26	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
983579	F	63	1	2015	12	2	3	2	2	2	2	1	1	1	1	1	2	1	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2	5	5
365366	G	68	1	2015	12	2	3	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	1	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
373420	G	47	1	2016	1	1	3	2	2	1	2	2	1	1	2	2	2	2	2	2	1	2	1	4	2	0	2	9	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
365929	g	48	2	2016	1	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4a	2	1	2	9	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
386303	g	61	1	2016	1	2	3	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	3	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
343828	G	51	1	2016	2	2	3	2	2	1	2	1	1	2	1	2	1	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	3	2	2	2	1	2	2	5	5
412148	G	44	2	2016	2	2	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
399432	G	52	1	2016	2	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1A	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	5	5
418479	G	67	1	2016	2	1	3	1	1	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	2	2	5	5
338794	G	40	1	2016	2	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	0	1	#NUL	1	1	1	2	2	2	2	1	1	1	2	2	3	1	1	2	2	5	5
403620	G	69	1	2016	2	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	2	2	2	3	1	1	3	1	1	1	1	1	2	2	4	4
997653	F	66	1	2016	2	1	3	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	1	4A	3B	1	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
422395	G	64	2	2016	3	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	1	0	2	10	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
364068	G	56	1	2016	3	1	3	2	2	1	2	2	1	1	1	1	2	2	2	2	2	2	2	3	1	0	2	10	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
437427	G	63	1	2016	3	2	3	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	1	4	1	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
442713	G	57	2	2016	3	2	3	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	1	3	3a	0	2	16	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
421743	G	50	1	2016	3	2	3	2	2	2	2	1	1	1	2	1	2	1	2	2	2	2	2	3	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
453094	g	69	1	2016	4	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4a	3	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
466188	G	77	2	2016	4	2	1	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	1	1	1	1	2	2	2	5	5
391217	G	53	1	2016	4	1	3	2	2	1	2	2	1	1	2	2	2	2	2	2	2	2	1	4A	3A	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	2	4	4
436753	G	63	1	2016	5	1	3	2	2	2	2	1	1	2	1	1	2	1	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	5	5
480261	G	66	1	2016	5	2	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	5	5
355739	G	70	1	2016	5	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	2	2	1	1	1	1	2	6	6
472137	g	55	1	2016	5	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	1	4a	3b	0	2	24	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
454183	C	61	1	2016	5	1	3	1	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	3	2	0	2	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
501376	G	46	1	2016	5	1	3	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	1	3	3	0	2	11	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
105166	G	46	2	2016	6	2	3	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4A	0	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	2	2	5	5
954768	F	65	2	2016	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	2	2	2	3	1	1	1	2	1	2	1	1	7	1	5	5
369564	G	51	1	2016	6	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	5	5
495517	G	66	1	2016	6	2	3	1	1	2	2	1	2	2	2	2	2	1	2	2	2	1	2	3	1	0	2	1	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
600632	G	37	2	2016	6	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	3A	0	2	9	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
508690	G	62	1	2016	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	1	4B	1	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
20066	G	66	1	2016	7	2	3	2	2	2	2	1	1	2	2	2	1	2	2	2	2	2	1	3	1	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	7	7
443887	G	56	1	2016	7	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	0	1	#NUL	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	6	1	5	5
622864	G	64	1	2016	7	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	12	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
647008	G	25	1	2016	8	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	3	1	1	1	3	2	3	1	1	1	2	6	6
660351	G	39	2	2016	8	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	7	7
647120	G	55	2	2016	8	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	5	5
621114	G	68	1	2016	8	1	3	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	4A	3A	1	1	#NUL	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2	5	5
637671	G	55	1	2016	8	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	2	0	0	2	18	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
642597	G	53	2	2016	8	2	3	2	2	2	2	1	1	2	2	2	1	2	2	2	2	1	1	4A	3A	0	2	18	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
645430	G	54	1	2016	8	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	4A	1	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
424782	G	64	1	2016	8	1	3	2	2	1	2	2	1	1	1	1	2	2	2	2	2	2	2	4	2	0	2	16	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
518445	G	32	2	2016	8	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	2	1	4A	3A	0	2	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
626552	G	23	2	2016	8	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	2	18	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
426758	G	63	1	2016	8	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
663517	G	73	1	2016	9	1	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
673737	G	35	2	2016	9	1	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
714823	G	44	1	2016	10	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	2	4	4
697287	G	46	1	2016	10	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	2	4	4
701201	G	59	1	2016	10	1	3	2	2	2	2	1	2	2	1	1	2	1	2	2	2	2	2	2	0	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	3	2	3	2	1	2	1	5	5
258836	C	48	1	2016	10	2	3	2	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	3	3B	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
994706	F	58	1	2016	10	2	3	2	2	2	2	1	1	2	2	1	2	1	2	2	2	2	2	4A	2	0	2	18	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
672706	G	51	1	2016	10	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	3	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
733015	G	59	2	2016	11	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3A`	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
719407	G	51	1	2016	11	2	3	2	2	2	2	1	1	1	1	1	2	1	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	5	5
731366	G	66	1	2016	11	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	4	4
738687	G	45	1	2016	11	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5
612399	G	56	1	2016	11	2	3	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	2	2	2	1	1	1	2	1	1	1	3	2	2	2	1	2	1	4	4

649546	G	51	1	2016	11	2	3	2	2	1	2	2	1	1	2	2	2	2	2	1	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	3	1	1	1	1	1	2	6	6
523136	F	49	2	2016	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	4A	2	0	2	6	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
712441	G	41	2	2016	11	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	3B	0	2	20	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
738726	G	55	1	2016	11	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	2	4A	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
712662	G	31	1	2016	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
669358	G	57	1	2016	12	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	2	3	3	3	2	2	2	2	2	3	3	2	2	1	4	4
986114	F	60	1	2016	12	2	3	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	1	3	3A	0	2	10	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
657690	G	54	1	2017	1	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4A	3	0	1	#NUL	1	1	1	2	2	2	2	1	1	1	2	2	2	2	2	2	2	5	5
513127		63	1	2017	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	2	6	6
765531	G	46	1	2017	1	2	3	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	3	2	5	5
752161	G	37	2	2017	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	5	5
540980	G	30	1	2017	1	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	1	1	4A	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	5	5
760808	G	51	1	2017	1	1	3	2	1	2	2	1	1	2	2	2	2	2	2	2	2	1	2	4A	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	5	5
768847	G	53	1	2017	1	2	3	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	4A	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
602381	G	49	1	2017	2	1	3	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	7	7
777766	G	61	2	2017	2	2	3	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5
761143	C	68	1	2017	2	2	3	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	5
786224	G	69	2	2017	2	2	3	1	1	2	2	1	2	2	1	2	2	2	2	2	2	2	1	4A	2	0	2	1	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
54759	D	49	1	2017	3	2	3	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	5	5
816804	G	74	1	2017	3	1	3	2	1	2	2	1	1	2	1	2	2	2	2	2	2	1	2	4A	2	0	1	#NUL	1	1	1	2	2	1	2	1	1	1	1	1	1	1	1	2	2	5	5
715970	G	35	1	2017	3	2	3	2	2	1	2	2	1	1	2	2	2	2	2	2	1	2	2	4A	1	0	1	#NUL	1	1	1	3	3	3	2	2	2	1	2	2	3	2	1	1	2	5	5
543917	G	64	1	2017	3	2	3	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	2	5	5
797252	G	32	1	2017	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
820479	G	51	2	2017	3	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
779861	G	49	1	2017	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	0	0	1	#NUL	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	4	1	3	3
823374	G	58	1	2017	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	2	2	2	1	2	2	2	1	1	1	1	1	2	2	5	5
855671	G	53	1	2017	4	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	2	2	2	2	1	1	2	2	2	2	1	1	2	2	6	6
837399	G	68	1	2017	4	2	3	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	6	6
779087	G	61	2	2017	4	1	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	0	0	2	1	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
830852	G	79	1	2017	4	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	2	4A	3A	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
557469	G	47	1	2017	5	1	3	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	2	4A	3B	1	1	#NUL	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2	5	5
790203	G	61	1	2017	5	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	5	5
778488	G	42	2	2017	5	1	1	1	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	4A	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
856467	G	36	1	2017	5	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
50685	G	54	2	2017	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1B	1	0	1	#NUL	1	1	1	2	2	2	2	1	1	1	2	1	2	1	1	2	2	6	6
837315	G	62	2	2017	6	1	3	2	2	2	2	1	1	2	2	2	1	2	1	2	2	2	2	4A	2	0	1	#NUL	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	2	2	5	5
907932	G	70	1	2017	6	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	3	2	3	1	1	2	2	5	5
828447	F	60	1	2017	6	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	6	6
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539676	G	50	1	2017	6	1	3	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4A	2	0	2	6	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
990807	C	59	2	2017	6	1	3	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2	2	4A	1	0	2	9	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
824869	D	82	1	2017	6	2	3	2	2	2	2	1	2	2	2	1	1	2	1	2	2	2	1	2	2	1	2	23	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
805048	G	59	1	2017	7	2	3	2	2	1	2	2	1	2	1	2	2	2	2	2	2	2	2	3	1	0	1	#NUL	1	1	1	1	1	1	2	1	1	2	2	2	2	1	1	1	2	5	5
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845152	G	51	1	2017	8	1	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	0	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	1	3	1	1	1	2	6	6
777939	G	42	2	2017	8	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	1	2	3	3B	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	6	6
929985	G	40	1	2017	8	2	3	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	4A	2	0	1	#NUL	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	5	5
961847	G	77	1	2017	8	2	3	2	2	2	2	1	2	2	2	1	2	2	2	1	2	2	1	3	3B	0	2	6	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
688027	G	46	1	2017	8	1	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	0	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
908017	G	60	1	2017	8	1	3	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	1	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
941702	G	45	1	2017	8	2	3	1	1	2	2	1	1	2	1	2	2	2	2	2	2	2	2	4A	2	0	3	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL	#NUL
998306	G	56	1	2017	9	2	3	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4	3	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	6	6
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977789	G	56	2	2017	9	2	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	2	2	2	2	1	1	2	2	2	1	1	1	2	2	5	5
971033	G	50	2	2017	9	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	4A	3A	0	1	#NUL	4	3	2	4	4	4	3	1	1	3	3	3	3	3	1	1	3	3	3
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910503	G	58	1	2017	9	1	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	4A	0	0	1	#NUL	1	1	1	1	2	1	1	1	1	2	2	2	1	1	1	1	2	6	6
935129	G	56	1	2017	9	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	3	1	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	2	2	2	1	1	2	2	6	6
910955	G	48	2	2017	9	1	3	2	2	1	2	2	1	2	2	1	2	2	2	2	2	2	2	3	2	0	1	#NUL	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	2	6	6
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924245	G	54	1	2017	10	2	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	1	4A	1	0	1	#NUL	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	2	7	7
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39012	H	45	2	2017	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	1	2	2	2	4A	1	0	1	#NUL	1	1	1	2	2	2	1	1	1	1	3	2	1	1	2	2	2	5	5
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33594	H	41	2	2017	11	2	3	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	3A	0	1	#NUL	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	6	6
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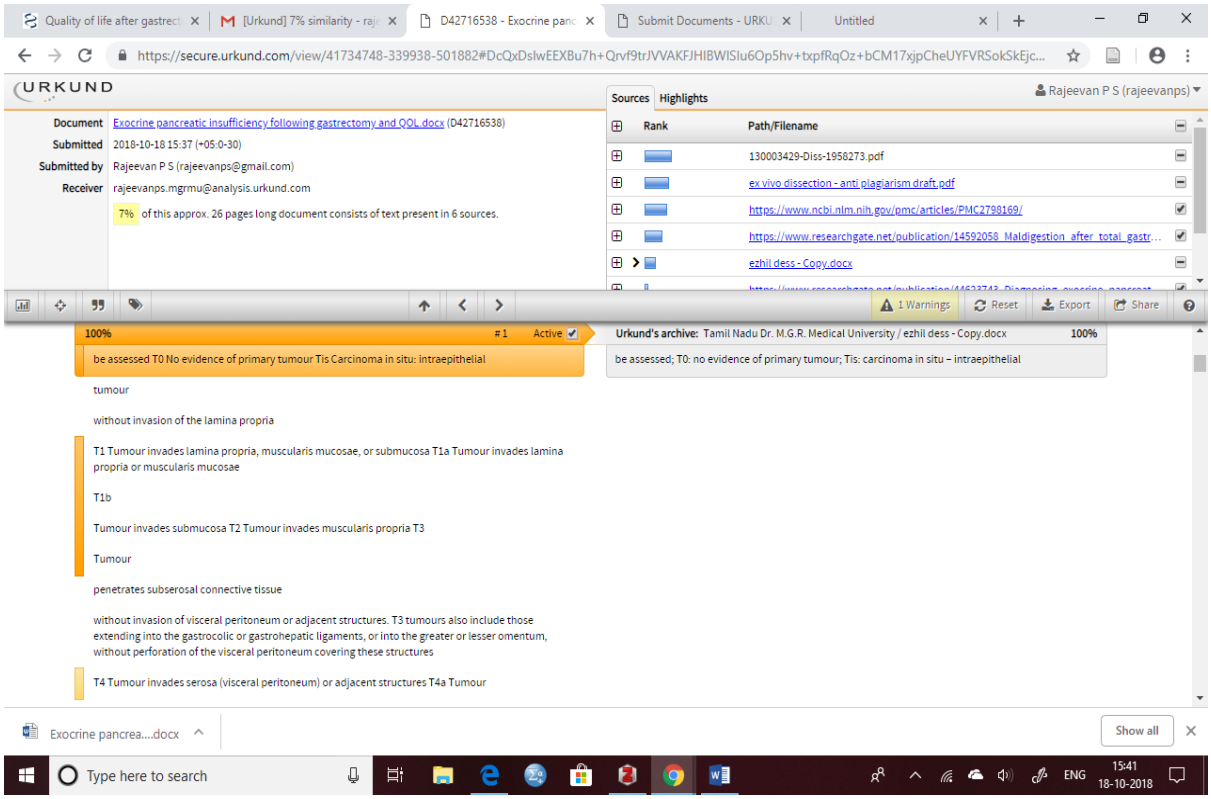
80822	H	48	1	2017	12	2	3	2	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	4A	1	0	1	#NUL	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	5	5
956567	G	47	2	2017	12	1	3	2	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	3	3	0	2	#NUL	#NU	#NUI	#NU	#NU	#NUL	#NUI	#NUI	#NUI	#NUL	#NULI	#NUL	#NULI	#NULL	#NULI	#NULI	#NUL	#NULL	#NULI	#NUL
962494	G	58	1	2017	12	1	3	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	3	0	0	3	#NUL	#NU	#NUI	#NU	#NU	#NUL	#NUI	#NUI	#NUI	#NUL	#NULI	#NUL	#NULI	#NULL	#NULI	#NULI	#NUL	#NULL	#NULI	#NUL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Active
be assessed T0 No evidence of primary tumour Tis Carcinoma in situ: intraepithelial
tumour
without invasion of the lamina propria
T1 Tumour invades lamina propria, muscularis mucosae, or submucosa T1a Tumour invades lamina propria or muscularis mucosae
T1b
Tumour invades submucosa T2 Tumour invades muscularis propria T3
Tumour
penetrates subserosal connective tissue
without invasion of visceral peritoneum or adjacent structures. T3 tumours also include those extending into the gastrocolic or gastrohepatic ligaments, or into the greater or lesser omentum, without perforation of the visceral peritoneum covering these structures
T4 Tumour invades serosa (visceral peritoneum) or adjacent structures T4a Tumour
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