

More detailed information to be shown on the JLA website for the questions discussed at the final workshop.									
PSP Name	Total number of verified uncertainties identified by the PSP	Uncertainty (PICO)	Rank of the uncertainty at the final workshop.	Patient interim ranking	Caregiver interim ranking	Healthcare professional interim ranking	Explanatory note	Date of the priority setting workshop	Evidence
<i>International Glycogen Storage Disease PSP</i>	72	What are the best options (for example gene therapy or enzyme replacement therapy) for achieving sufficient amount of working enzyme in patients with liver Glycogen Storage Disease?	1	3J	6	12J	There are several option for "curing" patients with liver GSD, one of which (gene therapy) is currently under development. This question emphasizes that research into a cure for patients with liver GSD is the top priority.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	Can consensus guidelines (for management) be achieved for patients with liver Glycogen Storage Disease?	2	71	58J	8J	There have been guidelines for several of the several GSD subtypes (Ia, Ib, III, VI, IX) from specific countries. Global management guidelines are lacking.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How should optimal metabolic control both clinically and biochemically (like lactate, ketones and/or lipids) be achieved in liver Glycogen Storage Disease?	3	20J	32J	5J	The goal of treatment in liver GSD is to prevent metabolic derangement. There are several manners in which metabolic derangement can be prevented, such as dietary treatment.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How should sickness and emergency situations be managed for patients with liver Glycogen Storage Disease?	4	9J	7	18	There are several manners in which sickness and emergency situations can be managed, for example with an emergency protocol or hospitalization. This question aims to find appropriate management options for different situations for patients with liver GSD.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What is the best way to start dietary treatment, finding the optimal doses, and to administer the diet for patients with liver Glycogen Storage Disease?	5	34J	37J	10J	Dietary treatment for patients with liver GSD can be initiated via several options, depending on internal and external factors of the individual patient.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How can existing cornstarch preparations be modified or alternative treatments be implemented that are easier to administer and/or keep blood sugar levels more stable for patients with liver Glycogen Storage Disease?	6	9J	4	4	The goal of cornstarch therapy for liver GSD is the maintenance of glucose homeostasis to prevent acute metabolic derangement leading to short-term and long-term complications, but the therapy be difficult to administer and does not provide a solution to every situation. Research of this summary question should focus on finding alternative preparations or treatments that are easier to administer or keep blood glucose levels more stable.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What is the role for new methods for monitoring metabolic control (like noninvasive continuous glucose and lactate measurements, new biomarkers) for patients with liver Glycogen Storage Disease?	7	40J	24J	8J	Metabolic control in patients with liver GSD is poorly defined and is based on markers that are indirectly linked to the metabolic blockade and are invasive to measure. The focus of this research question is to more closely monitor metabolic control with new technologies.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How to manage diet regimen in relation to "before, during and after" physical exercise (sport, playing) for patients with liver Glycogen Storage Disease?	8	5J	3	14	Glucose homeostasis in liver GSD can be challenging under conditions that require more energy, such as physical exercise. This question focusses on optimal management of the diet in relation to physical exercise.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What are the long-term complications (liver, renal, gut) of a diet rich in uncooked cornstarch and/or high protein and should the diet be adjusted to prevent complications in liver Glycogen Storage Disease?	9	9J	1	3	Cornstarch therapy is a modus of treatment in which a large part of the diet consists of carbohydrate therapy, which could possibly lead to complications associated with high carbohydrate intake, such as weight gain or diabetes mellitus. This question focusses on identification and prevention of situations in which cornstarch therapy leads to these complications.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What are the risks and benefits of different options for overnight treatment for patients with liver Glycogen Storage Disease and how can we maximize safety?	10	48J	22J	10J	Overnight treatment for liver GSD can consist of different modalities such as cornstarch therapy or continuous gastric dripfeeding. Complications of these treatment modalities have been reported in literature, but there is a lack of larger cohorts describing risks and benefits of these modalities.	24-may-19	Link: See evidence check

<i>International Glycogen Storage Disease PSP</i>	72	How to prevent and/or treat muscle problems in patients with liver Glycogen Storage Disease?	11	2	24J	22J	Muscle problems are an important complication of liver GSD that also have a muscle phenotype and are associated with possible decrease in quality of life. This question aims to prevent and/or treat these muscle complications.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What are the risks and benefits of gene therapy for patients with liver Glycogen Storage Disease?	12	1	2	12J	A gene therapy trial for GSD Ia is currently being performed and gene therapy is being developed for other types of liver GSD. This question stresses that it is important to evaluate short-term and long-term risks and benefits of this new treatment option.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How can we improve the quality of life of patients with liver Glycogen Storage Disease?	13	13J	10	39J	The final workshop participants decided that quality of life is an important aspect that should be addressed in each of the top priorities for liver GSD.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How to prevent and/or treat neurological problems in patients with liver Glycogen Storage Disease?	14	8	65	66J	As a result of acute and chronic periods of hypoglycemia in liver GSD, neurological symptoms can occur. This question emphasizes that more research is necessary to avoid these neurological complications.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What are the effects of different kinds of Ketogenic Diet in patients with Glycogen Storage Disease Type III?	15	20J	48J	7	There is much debate in literature on the indication and effect of ketogenic diet for patients with liver GSD. This question illustrates that more research is needed into the treatment effects.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What is the needed restriction of lactose, fructose or saccharose in different types of liver Glycogen Storage Disease?	16	26J	9	2	Guidelines emphasize that lactose, fructose and saccharose are carbohydrates that are have to be strictly avoided in GSD Type I.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How can patients with liver Glycogen Storage Disease achieve and/or maintain a healthy weight throughout life?	17	3J	8	33J	Weight gain can be a complication of liver GSD since the cornerstone of treatment is a diet rich in complex carbohydrates. This question emphasized that more research is necessary on protocols to prevent, achieve or maintain a healthy weight, without metabolic derangement occurring due to undertreatment.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How is the (natural) progression of liver Glycogen Storage Disease at different stages of life?	18	5J	5	39J	For several types of liver GSD the (natural) progression has been researched. However, this research is mainly focussed on developed countries and do not involve global initiatives. More research is necessary on global cohorts of patients with liver GSD (i.e. in registries) to study (natural) progression of the disease.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	What are the consequences of consumption of alcohol and drugs for patients with liver Glycogen Storage Disease?	19J	9J	27	46	Consumption of alcohol and drugs is hazardous for patients with liver GSD for multiple reasons. However, the question illustrates especially for patients and parents a gap of knowledge to which extent this applies.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	How to prevent and/or treat hormonal problems (i.e. thyroid, menstrual cycle, growth, diabetes, insulin response) in patients with liver Glycogen Storage Disease?	19J	5J	32J	45	As treatment of liver GSD is further optimized these past decades, the liver GSD cohort is ageing. As such, long-term complications associated with liver GSD and its treatment can be investigated further.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	When should liver transplantation be considered in patients with liver Glycogen Storage Disease and what are the (dis)advantages and long-term outcomes?	19J	48J	29	5J	Liver transplantation is a modality of treatment that is indicated for specific situations for patients with liver GSD. However, not much follow-up information on long-term outcomes are known.	24-may-19	Link: See evidence check
<i>International Glycogen Storage Disease PSP</i>	72	Which is the role and use of medium-chain triglycerides (MCT) in the management of different patients with liver Glycogen Storage Disease?	22	54J	68J	1	There is much debate in literature on the indication and effect of MCT treatment for patients with liver GSD. This question illustrates that more research is needed into the treatment effects.	24-may-19	Link: See evidence check

Data management spreadsheet for use by Priority Setting Partnerships for all questions received. Spreadsheet to be published on the JLA website at www.jla.nihr.ac.uk on completion of the PSP.

Total Rank after second questionnaire	Uncertainty (PICO formatted)	Uncertainties before evidence check and merging	Original uncertainty examples	Patient interim ranking	Caregiver interim ranking	Healthcare professional interim ranking	Evidence	Source of Uncertainty
1	What are the long-term complications (liver, renal, gut) of a diet rich in uncooked cornstarch and/or high protein and should the diet be adjusted to prevent complications in liver Glycogen Storage Disease?	Merge: G3DT1 What are the long-term complications (liver, renal, gut) of a diet rich in UCCS (or Glycosade) and/or high protein and should the diet be adjusted to prevent complications in the different liver Glycogen Storage Diseases? G4Long1 What are the long-term consequences of treatments including starches and protein in patients with liver Glycogen Storage Disease?	What effects to cornstarch/Glycosade have on long-term health? ~ Is the high amount of uncooked corn starch going to cause problems long term? ~ Which affectation can have the kidneys with the high consumption of protein? ~ Does the corn starch and glycosade effect the liver and kidneys due to how much daily intake they have. ~ What effects to cornstarch/Glycosade have on long-term health?	9J	1	3	Link: See evidence check	Patient, carer and healthcare professionals
2	What are the risks and benefits of gene therapy for patients with liver Glycogen Storage Disease?	Alteration: G4GTR1 What are the risks of gene therapy for patients with liver Glycogen Storage Disease?	What side effects will gene therapy have? ~ Long-term studies - stem cells / gene therapy	1	2	12J	Link: See evidence check	Patient, carer and healthcare professionals
3	How can existing cornstarch preparations be modified or alternative treatments be implemented that are easier to administer and/or keep blood sugar levels more stable for patients with liver Glycogen Storage Disease?	Alteration: G3DT4 Is there any research of modification of the existing cornstarch preparations, and in alternative treatments that can keep blood glucose stable for longer time and be easier to administer for patients with liver Glycogen Storage Disease?	Could exist a pill to be in the stomach and give slowly carbs in order to be easier to take a big dose of cornstarch? ~ Making long lasting cornstarch that is more palpable and less volume? ~ what are the differences in efficacy of various food starches (rice vs. potato vs. wheat vs corn vs. cassava-tapioca) providing carbs for GSD1 pts? ~ starting infants on cornstarch and the transition from continuous feeds to UCS ~ Are there any studies regarding the use of glycoside during the day?	9J	4	4	Link: See evidence check	Patient, carer and healthcare professionals
4	What are the best options (for example gene therapy or enzyme replacement therapy) for achieving sufficient amount of working enzyme in patients with liver Glycogen Storage Disease?	Same	I'd like to know about can crisper cas technologie could matter possibility of genetherapie for GSD? Who researches in this field? ~ With gene therapy and liver transplantation, are hypoglycaemias avoided and cornstarch dispensed or can they have a diet rich in lactose, fructose and sucrose? ~ realistic alternatives to AAV8 gene therapy.	3J	6	12J	Link: See evidence check	Patient, carer and healthcare professionals
5	How to manage diet regimen in relation to "before, during and after" physical exercise (sport, playing) for patients with liver Glycogen Storage Disease?	Alteration: How to manage physical activity and what kind of physical activity is recommended for patients with liver Glycogen Storage Disease?	Are there studies on the subject of sport, which sports / duration help to improve the metabolism? ~ If he starts doing sports/swimming, what does that do with his diet? ~ What time before exercise should I give cornstarch and protein?	5J	3	14	Link: See evidence check	Patient, carer and healthcare professionals
6J	How should sickness and emergency situations be managed for patients with liver Glycogen Storage Disease?	Merge: G1CC2 How should emergency situations be managed? G4EM1 How should sickness and emergencies be managed?	Is there a specific protocol to follow when a GSD patient gets sick? ~ What can be done about the emergency department of any hospital, with the intention for them to have the enough knowledge with the protocol on a GSD? ~ How to treat the fever? Which medicine is the most indicated? ~ I worry to know that in hospitals where patients with hepatic GSD are being treated, do not have an emergency protocol established. We are always parents who have to give these guidelines.	9J	7	18	Link: See evidence check	Patient, carer and healthcare professionals
6J	What is the needed restriction of lactose, fructose or saccharose in different types of liver Glycogen Storage Disease?	Same	I would like to know retriiction of fructose and galactose restriction. What is the best way to go? ~ Can my son have limited amounts of lactose and fructose? I get different answers depending who I speak to. He is type 1A. ~ Can we clear the diet from adolescence concerning lactose and fructose without risk.	26J	9	2	Link: See evidence check	Patient, carer and healthcare professionals
8	How can patients with liver Glycogen Storage Disease achieve and/or maintain a healthy weight throughout life?	Merge: G4Weight1 How can a healthy weight be maintained throughout life for patients with liver Glycogen Storage Disease? G4Weight2 How can weight loss safely occur for patients with liver Glycogen Storage Disease? G1Com1n How to treat and/or prevent overweight in patients with liver Glycogen Storage Disease?	Development of overweight and diabetes at an adult age. ~ The weight gain that comes with consuming cornstarch ~ Is there a possibility to lose weight despite the high carbohydrates?	3J	8	33J	Link: See evidence check	Patient, carer and healthcare professionals
9	How can we individualize the diet and the adjustment regarding macronutrients (fats, carbohydrates proteins) and micronutrients (i.e. vitamins and calcium) for patients with liver Glycogen Storage Disease?	Alteration: G3DT5 What is the optimal diet in concern of macro-/micronutrients and amount of carbohydrates and proteins for the different types of GSD, at different age and in different situations? And how often should the diet be adjusted?	amount of protein / CHO in diet depending on type of GSD ~ How can I calculate the dose of raw cornstarch, given the new trends working with an outpatient? ~ What are current recommendations for CS? Same for all GSD patients? ~ Optimizing macro/micro nutrient intake with such a restrictive diet as in type 1a.	13J	18	16J	Link: See evidence check	Patient, carer and healthcare professionals
10	How to prevent and/or treat muscle problems in patients with liver Glycogen Storage Disease?	Same	Myopathy for GSD Type III ~ Skeletal muscle involvement ~ Is there a solution to treat my sick muscles?	2	24J	22J	Link: See evidence check	Patient, carer and healthcare professionals
11	How is the (natural) progression of liver Glycogen Storage Disease at different stages of life?	Same	How do you cope with the disease changing as you age? ~ What to expect into adulthood? ~ What is the phenotype in adult age	5J	5	39J	Link: See evidence check	Patient, carer and healthcare professionals

12	How should optimal metabolic control both clinically and biochemically (like lactate, ketones and/or lipids) be achieved in liver Glycogen Storage Disease?	Merge: G4Lab1 What are the consequences of abnormal lab values in patients with liver Glycogen Storage Disease? G4Lab2 How should abnormal metabolic values be managed in liver Glycogen Storage Disease? G4Lab3 What causes abnormal laboratory values in liver Glycogen Storage Disease? G1Mon1 How to achieve optimal metabolic control for patients with liver Glycogen Storage Disease?	How important is it to keep ketone levels to a minimum? ~ prognostic markers for type IX? ~ What biochemical parameters are useful in the patient with GSD? How do you monitor the treatment in the patient to observe its effectiveness, as well as how to make appropriate adjustments in the treatment? ~ Why are there remaining strongly deviant metabolic parameters (lactate/triglycerides) even if there are no hypoglycemia's?	20J	32J	5J	Link: See evidence check	Patient, carer and healthcare professionals
13	How do you prevent, monitor and manage liver adenomas in liver Glycogen Storage Disease?	Same	What is the cause of adenomas? How can I prevent them in my son? ~ How to minimize the risks associated with the appearance of liver nodules? ~ Prognosis of adenomas.	17J	16J	25J	Link: See evidence check	Patient, carer and healthcare professionals
14	How can we improve the quality of life of patients with liver Glycogen Storage Disease?	Same	How can we increase the quality of life of GSD I patients? ~ Quality of life impact on patients and their caregivers? Adult management type 1a to improve quality of life.	13J	10	39J	Link: See evidence check	Patient, carer and healthcare professionals
15	How can the accuracy of glucose monitoring be improved to better control glucose and prevent hypoglycemia for patients with liver Glycogen Storage Disease?	Same	How is his blood sugar? Should I monitor blood sugar all day? ~ Is continuous monitoring really the best option for managing GSD patients when callibration each day is needed as we have seen dramatic differences in cm and bg finger sticks. ~ reliability of continuous glucose monitoring ~ Which glucometers can we recommend to patients (besides Freestyle Lite)? ~ How to improve the detection of hypoglycemia (example: a permanant detector such as those for diabetes)	26J	12J	30J	Link: See evidence check	Patient, carer and healthcare professionals
16	How to better prevent and/or treat intestinal problems in patients with liver Glycogen Storage Disease?	Same	inflammatory bowel problems inGSD type 1B ~ What is the experience with Morbus Crohn in type 1a and b? What is the proportion of affected patients? Are there any dark figures? ~ Protective agents or foods against IBD in GSD1B?	20J	11	39J	Link: See evidence check	Patient, carer and healthcare professionals
17J	What is the role for new methods for monitoring metabolic control (like noninvasive continuous glucose and lactate measurements, new biomarkers) for patients with liver Glycogen Storage Disease?	Alteration: G1Mon3 Do we need new methods of monitoring metabolic control (like noninvasive continuous glucose and lactate measurements, new biomarkers) for patients with liver Glycogen Storage Disease?	Are there advanced monitoring technologies for GSD? What countries are offering these tools? ~ Development of a non-invasive continuous glucose and lactate meter for glycogenesis patients ~ Continuous blood sugar measurement- advantages compared to 3rd month controls.	40J	24J	8J	Link: See evidence check	Patient, carer and healthcare professionals
17J	How to prevent and/or treat kidney problems in patients with liver Glycogen Storage Disease?	Same	What is the best practices for preventing kidney complications in Glycogen Storage Disease type 1a and 1b? ~ When should be started potassium citrate? ~ How to control the loss of protein in the urine?	26J	14J	32	Link: See evidence check	Patient, carer and healthcare professionals
19	What are the acute and chronic consequences of hypoglycemia in patients with liver Glycogen Storage Disease?	Same	Long-term effects of repeated hypoglycaemia in the middle range (blood sugars 50-70 mg/dl) ~ Hypoglycemia can affect neurons? ~ What are the main consequences of hypoglycemia?	19	12J	43J	Link: See evidence check	Patient, carer and healthcare professionals
20	What are the effects of different kinds of Ketogenic Diet in patients with Glycogen Storage Disease Type III?	Same	Is the ketogenic diet/modified Atkins diet a useful therapy option for GSD type III? ~ Place of a ketogenic diet and above all how to accept such a diet in the social life in the long term ~ Do ketogenic diets help cardiomyopathy in GSD 111?	20J	48J	7	Link: See evidence check	Patient, carer and healthcare professionals
21	What are the risks and benefits of different options for overnight treatment for patients with liver Glycogen Storage Disease and how can we maximize safety?	Merge: G4Safe1 How can we maximize safety during the overnight period for patients with liver Glycogen Storage Disease? G4Night1 What are the different options for overnight treatment for patients with liver Glycogen Storage Disease and what are the risks and benefits of each option?	Is nighttime feeding via tube necessary? ~ Is there proven evidence that over night cornstarch started in infancy has no worse consequences in terms of glucose responsiveness and secondary complications in GSD1a compared to overnight gastric trip feeding? ~ Over night Blood Sugar management. ~ How can safety be improved during the night? ~ Risk of dislocation of the tube in GSD 1 and 3 during the night. How to secure this without burdening the parents too much?	48J	22J	10J	Link: See evidence check	Patient, carer and healthcare professionals
22	What is the best way to start dietary treatment, finding the optimal doses, and to administer the diet for patients with liver Glycogen Storage Disease?	Alteration: G3DT3 Which is the best way to administer the diet and should a gastrostomy be placed for patients with liver Glycogen Storage Disease? Bolus corn-Starch vs. nasogastric tube feeding in terms of long term complication, quality of life, type of GSD, glucose responsiveness and finding optimal dose of carbohydrates.	How frequently to recommend an in-hospital stay for adjustment of diet and cornstarch? ~ How best to administer cornstarch, timing with respect to meals? ~ Can the use of the gastric tube be forever?	34J	37J	10J	Link: See evidence check	Patient, carer and healthcare professionals
23J	What are the consequences of consumption of alcohol and drugs for patients with liver Glycogen Storage Disease? ~ How does smoking and eventual alcohol drinking affect GSD 1a patients?	Merge: G2A1c1: How does alcohol affect the liver in GSD? G2A1c2 How quickly does a liver recover from damage caused by alcohol? G1AD1 What are the consequences of consumption of alcohol and drugs for liver GSD patients?	Is there a point when liver glycogen storage disease patients are safe to drink alcohol? ~ What effect does recreational Marijuana use have on the GSD population ~	9J	27	46	Link: See evidence check	Patient, carer and healthcare professionals
23J	How to prevent and/or treat hormonal problems (i.e. thyroid, menstrual cycle, growth, diabetes, insulin response) in patients with liver Glycogen Storage Disease?	Same	Risk of developing concurrent diabetes ~ What are the long term effects from stress on the body due to GSD? ~ How big is the inference between GSD and hormones in female patients? ~ insuline reponse in gsd?	5J	32J	45	Link: See evidence check	Patient, carer and healthcare professionals

23J	When should liver transplantation be considered in patients with liver Glycogen Storage Disease and what are the (dis)advantages and long-term outcomes?	Merge: G2LT1 When should liver transplantation be considered in patients with liver Glycogen Storage Disease? G2LT2 How does liver transplantation modify the natural history of liver Glycogen Storage Disease?	When to consider liver or transplantation for best outcomes? ~ The role and timing of livertransplant in the treatment of GSDI/GSDIII. ~ When is transplant indicated in the absence of significant fibrosis or a tumor? ~ Particular care of these patients in the pre- and post-liver transplantation ~	48J	29	5J	Link: See evidence check	Patient, carer and healthcare professionals
26J	What are the alarm symptoms of patients with liver Glycogen Storage Disease and how can they be recognized?	Alteration: G1Mon2 What are the alarm symptoms of patients with liver Glycogen Storage Disease?	There are so many other parts of the body that are affected by GSD. What are the red flags that are easy to miss but are definitely a part of GSD? ~ What are the alarm symptoms? ~ What tests help ensure we are on the right track? What should ranges be in?	17J	19J	47	Link: See evidence check	Patient, carer and healthcare professionals
26J	How does liver Glycogen Storage Disease affect the cognitive development of patients?	Same	Does GSD affect a child's ability to learn? ~ Neurocognitive assessment ~ Psychological aspects, how we can handle this aspect?	16	19J	48J	Link: See evidence check	Patient, carer and healthcare professionals
28	What is the role of continuous glucose monitoring in patients with liver Glycogen Storage Disease?	Same		26J	43J	16J	Link: See evidence check	Patient, carer and healthcare professionals
29J	How can we better monitor metabolic control and outcomes at different stages of life in patients with Glycogen Storage Disease?	Merge: G1AO1 How should monitoring be performed in adult patients with liver Glycogen Storage Disease? G1Age2 How is the management and monitoring of patients with liver Glycogen Storage Disease at different stages of life?	How does glycogenesis develop after puberty? ~ What risks are there for longevity of age if diagnosed later ? ~ Long-term management in Adult patients with GSD, overall life expectancy	40J	30J	19	Link: See evidence check	Patient, carer and healthcare professionals
29J	What (laboratory) testing and with which frequency is optimal for monitoring patients with liver Glycogen Storage Disease?	Merge: G4Mon1 What laboratory testing and with which frequency is beneficial for monitoring patients with liver Glycogen Storage Disease? G4DT1 What testing should be performed on a daily basis in patients with liver Glycogen Storage Disease?	What should we monitor on a daily basis beyond blood sugar? ~ Accurate lactate testing at home ~ How often do laboratory tests need to be done? ~ Labs controls, minimum frequency?	34J	28	27J	Link: See evidence check	Patient, carer and healthcare professionals
31	What are the predictors and diagnostics of malignant transformations of liver adenomas in patients with liver Glycogen Storage Disease?	Same	How often does the liver need to be checked for adenomas? ~ What is the risk of hepatocellular carcinoma? ~ What is the reason that some do and some do not develop liveradenoma? ~ What is the chance that hepatic nodules that appear in some patients become malignant?	26J	43J	21	Link: See evidence check	Patient, carer and healthcare professionals
32	Can guidelines be made for patients with liver Glycogen Storage Disease and their caregivers about how to deal with behavioral problems and management of GSD diet, such as social consequences, lack of appetite/eating refusal, motivation, and sleeping disorders?	Merge: G2ED1 What frequency of Glycogen Storage Disease Type Ia patients develop eating disorders? G2Pers1 How does liver Glycogen Storage Disease affect behavior and personality development? G2Com1 What factors influence compliance in patients with liver Glycogen Storage Disease? G3DT2 Can guidelines be made for patients with liver Glycogen Storage Disease and their caregivers about how to deal with behavioral problems and management of GSD diet, such as social consequences, lack of appetite/eating refusal, tolerance of the diet, motivation, and sleeping disorders? G4To1 How can tolerance to treatment be improved for patients with liver Glycogen Storage Disease? G4Sleep1 What is the impact of disrupted sleep in patients with liver Glycogen Storage Disease? G4ESD1 How does treatment impact on eating and social development in patients with liver Glycogen Storage Disease?	As in all care for a chronic illness: the difficulties in motivating adult patients to adhere to dietary care ~ What is the percentage of GSD type 1 Pat developing an eating disorder? ~ GSD effect on behavior & personality ~ Difficult eating problems. How can you stimulate your child to eat the right things or to eat at all. ~ Many infants and children acquire oral aversions and eating difficulties in the beginning. It seems like a Feeding therapist is something that would be helpful to have as a part of your regular team (one specifically that deals with GSD) ~ Concerned that the lack of sleep from having to take medications 5 times between the hours of 9pm and 7am. ~ In case of cornstarch intolerance, what options have you tried?	45J	14J	33J	Link: See evidence check	Patient, carer and healthcare professionals
33	What is the need for supplementation of micronutrients (i.e. vitamins and calcium) in patients with liver Glycogen Storage Disease?	Same	Is it necessary to give the patient calcium even when it is not low? ~ best nutrition supplements especially for calcium ~ Calcium, vitamin D and polyvitamin supplementation.	34J	32J	30J	Link: See evidence check	Patient, carer and healthcare professionals
34	What can be done to prevent hypoglycemia or restore blood sugar to a safe level in patients with liver Glycogen Storage Disease?	Same	How can you safely avoid hypoglycaemia? ~ To what degree dose the daily variation in blood glucoses necessitate multi-day evaluations to determine 'stability' after a dietary intervention? ~ To avoid that the person with GSD get convulsions because of Low Blood glucose glucose	26J	39J	33J	Link: See evidence check	Patient, carer and healthcare professionals
35	What is the life expectancy of patients with liver Glycogen Storage Disease?	Same	What is the typical life span of someone with this disease? ~ What is the life expectancy of patients with hepatic glycogenesis? ~ Life span for adults	26J	22J	52J	Link: See evidence check	Patient, carer and healthcare professionals
36J	How to prevent and/or treat heart problems in patients with liver Glycogen Storage Disease?	Same	how to avoid heart disease? ~ How can we prevent cardiomyopathy? ~ to much glucose in the diet of infants and toddlers and later possible development of cardiomyopathy.	13J	41J	48J	Link: See evidence check	Patient, carer and healthcare professionals
36J	How does dietary intake impact on metabolic control in patients with liver Glycogen Storage Disease?	Same	What kind of dietary restrictions/interventions impact the lactate, TG and ASAT / ALAT the most in GSD1 patients? Fasten regime, maizena, MCT, restriction of lactose/fructose/sacharose? ~ Want to know more about the correlation between foodintake (how much and how often) and symptoms/measurement in blood. ~ optimizing diet to correct biochemical abnormalities.	20J	55	27J	Link: See evidence check	Patient, carer and healthcare professionals

38	How does liver Glycogen Storage Disease affect patients and families psychologically?	Same	What can be done to psychosocially support patients and families? ~ Is there enough attention for the psychological consequences? (hospital admissions, tubes). ~ What psychological implications arise from the early childhood experience of having to drink corn starch protein shakes and follow a special diet?	26J	16J	63J	Link: See evidence check	Patient, carer and healthcare professionals
39	How can all health care providers involved (including experts) contribute to shared care for individual patients with liver Glycogen Storage Disease?	Same	How to guide non-specialist professionals about the disease? ~ want continuity of care so that primary care providers can be supportive & proactive in care of the GSB patient. Know the screenings signs/symptoms and monitoring tests required. ~ How can you clearly articulate patient metabolic needs to doctors who have never seen GSD?	20J	30J	57J	Link: See evidence check	Patient, carer and healthcare professionals
40	How to prevent and/or treat liver problems in patients with liver Glycogen Storage Disease?	Same	Which metabolic pathway is responsible for liver adenomas/kidney failure and how to avoid it? ~ Monitoring for and recognition of drug-induced hepatotoxicity ~ How frequently should liver ultrasounds be done?	40J	21	55J	Link: See evidence check	Patient, carer and healthcare professionals
41	What is the best therapy for neutropenia and infections (i.e. G-CSF or alternatives) considering outcomes, complications and side effects (i.e. bone pain) in patients with Glycogen Storage Disease Type Ib (or Ia)?	Merge: G2Neu1 How do you improve neutropenia and prevent infections in GSD Ib (one person 1a)? G2Neu3 How does neupogen dosing affect outcomes and complications, including bone pain and apoptosis? G2Neu4 Are there other therapies for neutropenia than G-CSF? & G2Bone1 Can bone pain be avoided when using G-CSF in GSD Ib?	Avoidance of bone pain when using G-CSF ~ How to increase the immunity of glycogen storage disease patient? ~ How to prevent infections in GSD Ib? ~ How much Neupogen should be given to individuals with GSD Ib? What are their outcomes with different dosing patterns? What are the complications seen? ~ What therapies other than Neupogen are available to deal with neutropenia in GSD Ib patients?	54J	43J	20	Link: See evidence check	Patient, carer and healthcare professionals
42	What is the optimal management of reduced bone mineral density and its complications (i.e. osteoporosis) in patients with liver Glycogen Storage Disease?	Alteration: G2Ost1 What is the proper management of osteoporosis in patients with Glycogen Storage Disease?	With the development of osteoporosis can glycosade reverse this ~ At what age should results of bone density tests be considered accurate/reliable? Age 14? Age 17? ~ Bone health: Long term results and treatment options	40J	56J	22J	Link: See evidence check	Patient, carer and healthcare professionals
43	How do body changes throughout life impact blood sugars in patients with liver Glycogen Storage Disease?	Same	Does glucose control worsen or improve or does it remain similar throughout life if it is followed with good treatment? ~ Does hypoglycemia tend to decrease with patient growth? ~ how do manage blood sugar during menstrual period?	40J	24J	57J	Link: See evidence check	Patient, carer and healthcare professionals
44	What is the mechanism behind neutropenia and Inflammatory Bowel Disease (IBD) in Glycogen Storage Disease and can these complications be cured?	Merge: G2IBD1 When GSD Ib is "cured" will there still be IBD? G2Neu2 What is the relationship between neutropenia and IBD in GSD Ib? & G2Inf1 What causes inflammation in GSD Ia?	With liver transplantation does neutropenia disappear? ~ Inflammatory disease in Ia ~ Neutropenia and inflammatory bowel disease in GSD type 1B	48J	47	27J	Link: See evidence check	Patient, carer and healthcare professionals
45	Which is the role and use of medium-chain triglycerides (MCT) in the management of different patients with liver Glycogen Storage Disease?	Same	Do MCT diets help cardiomyopathy in GSD 111 ~ Is there a role for MCT in the management of GSD1? ~ Does the addition of MCT help in treatment?	54J	68J	1	Link: See evidence check	Patient, carer and healthcare professionals
46	How can we optimize treatment to prevent growth delays in liver Glycogen Storage Disease?	Alteration: G2GD1 With proper treatment, are growth delays in liver Glycogen Storage Disease inevitable?	How I help grow my type is GSD type III ~ It is true that increasing cornstarch at night helps children grow gsd ~ Is growth deficiency irreversible after early childhood?	61J	39J	25J	Link: See evidence check	Patient, carer and healthcare professionals
47	How important is climate/weather for patients with liver Glycogen Storage Disease?	Same	How important is climate for patients with gsd?	20J	41J	71J	Link: See evidence check	Patient, carer and healthcare professionals
48J	What is the relationship between carriership of liver Glycogen Storage Disease and symptoms and signs?	Same	Why do some female carriers show signs while pregnant? ~ Do carriers of GSD 1 suffer from hypoglycemia ~ Shouldn't there be more research on symptomatic heterozygous carriers and mixed types?	54J	32J	51	Link: See evidence check	Patient, carer and healthcare professionals
48J	Can consensus guidelines (for management) be achieved for patients with liver Glycogen Storage Disease?	Merge: G4Guide1 Can consensus guidelines for diet be achieved for patients with liver Glycogen Storage Disease? G4Guide 2 Why is there a lack of consensus regarding guidelines for treatment of patients with liver Glycogen Storage Disease?	Would the doctor publish dietary regime for adults with 1a so others who are unable to get in to see the doctor can have the same success as others? ~ How can a globally unified treatment be achieved? ~ Would like more research with foods and sugars so there would be a consensus throughout the world.	71	58J	8J	Link: See evidence check	Patient, carer and healthcare professionals
50J	How to prevent and/or treat neurological problems in patients with liver Glycogen Storage Disease?	Same	How do we follow neurologic sequelae and development? ~ How do we monitor neurologic sequelae and development? ~	8	65	66J	Link: See evidence check	Patient, carer and healthcare professionals
50J	What is the optimal therapy (Modulen or alternatives) for Inflammatory Bowel Disease (IBD) and acute flares in patients with Glycogen Storage Disease Type Ib?	Merge: G2IBD2 Is Modulen a viable treatment for IBD in GSD Ib? G2IBD3 What is the therapeutic treatment in acute (flare) chrons in GSD Ib?	update on use of Modulen in IBD associated to GSD1b ~ Management of refractory inflammatory bowel disease in GSD1b ~	54J	48J	37J	Link: See evidence check	Patient, carer and healthcare professionals
50J	How can we personalize treatment for patients with liver Glycogen Storage Disease?	Same	Individualisation of treatment ~ can treatment be more liberal in those with good labs?	45J	58J	36	Link: See evidence check	Patient, carer and healthcare professionals
53	How to prevent and/or treat immunological problems (i.e. infections) in patients with liver Glycogen Storage Disease?	Same	Can children with GSD have a spleen inflammation? ~ Can GSD trigger autoimmune diseases? ~ co morbidity of candida and psoriasis and other inflammatory disorders.	54J	36	52J	Link: See evidence check	Patient, carer and healthcare professionals
54	How to prevent and/or treat psychiatric problems (i.e. depression) in patients with liver Glycogen Storage Disease?	Merge: G1Com11 How to treat and/or prevent psychiatric problems in patients with liver Glycogen Storage Disease? G2Depr1 Is there a significant correlation between depression and liver Glycogen Storage Disease?	Is there a link between GSD and autism? ~ Do children with GSD tend to be depressed during puberty?	34J	48J	61J	Link: See evidence check	Patient, carer and healthcare professionals

55J	How can we improve the diagnostic procedures of liver Glycogen Storage Disease?	Same	Definitive test to determine exact type GSD – Logaritms for the diagnosis ~ Where can 3rd world countries get access to free or subsidized testing to confirm GSD type?	48J	54	43J	Link: See evidence check	Patient, carer and healthcare professionals
55J	How to prevent and/or treat hyperlipidemia and its complications in patients with liver Glycogen Storage Disease?	Same	What are the consequences of increased triglyceride values of GSD I? ~ How to manage dyslipidemia? ~ Long-term effect of high blood values (e. g. triglycerides) on the body.	68J	62	15	Link: See evidence check	Patient, carer and healthcare professionals
57	Can liver Glycogen Storage Disease cause developmental delays throughout childhood?	Same	Can GSD cause developmental delays throughout childhood? ~	45J	43J	61J	Link: See evidence check	Patient, carer and healthcare professionals
58J	How can we better understand differences in disease severity by investigating patients with liver Glycogen Storage Disease?	Same	How exactly does the enzyme effect of the liver correlate with neutrophil blood cells at 1b? ~ Would love to know why we are so different every when we have the same type. ~ What strides are being made in defining causative mutations amongst the various types and who is defining/determining which mutations are symptomatic versus asymptotic?	34J	61	55J	Link: See evidence check	Patient, carer and healthcare professionals
58J	How can we help (families of) patients with liver Glycogen Storage Disease to encourage patients' independency?	Same	Living independence ~ At what age can a child manage their own care? Concerned about compliance and management for late teens and early 20's.	61J	37J	52J	Link: See evidence check	Patient, carer and healthcare professionals
58J	What are the target levels for metabolic testing in liver Glycogen Storage Disease?	Same	What are the major treatment goals for each of the GSD's? ~ What tests help ensure we are on the right track? What should ranges be in? ~ Optimal blood glucose and lactate control	61J	67	22J	Link: See evidence check	Patient, carer and healthcare professionals
61	How to prevent and/or treat dental problems in patients with liver Glycogen Storage Disease?	Same	Dental problems with GSD 1b (gingival bleeding, aphthae and increasing tooth loosening).	34J	48J	71J	Link: See evidence check	Patient, carer and healthcare professionals
62	Is (population) neonatal screening possible for liver Glycogen Storage Disease?	Same	Is the disease manifested in the first moments of life? ~ Is the disease detected with any routine screening at birth? ~ What could early testing look like (screening in infancy)?	68J	53	37J	Link: See evidence check	Patient, carer and healthcare professionals
63	Which strategies could be useful to motivate adult patients with liver Glycogen Storage Disease to adhere to treatment?	Same	As in all care for a chronic illness: the difficulties in motivating adult patients to adhere to dietary care	48J	63J	48J	Link: See evidence check	Patient, carer and healthcare professionals
64	How to prevent and/or treat oncological problems (i.e. leukemia) in patients with liver Glycogen Storage Disease?	Same	Tumor development. ~ patients with GSD are more likely to have cancer? ~ Association with malignant pathology?	48J	56J	63J	Link: See evidence check	Patient, carer and healthcare professionals
65	What are costs and effects of ongoing care for patients with liver Glycogen Storage Disease and their families?	Same	Economic impacts of having a chronic illness	54J	48J	66J	Link: See evidence check	Patient, carer and healthcare professionals
66	Should there be more information and research on synergistic heterozygosity / mixed liver Glycogen Storage Disease?	Same	More information is needed on synergistic heterozygosity and atypical presentations. ~ When will Dr's start recognizing "synergistic heterozygosity"? ~ Shouldn't there be more research on symptomatic heterozygous carriers and mixed types?	65J	66	42	Link: See evidence check	Patient, carer and healthcare professionals
67	What are the side effects of over the counter drugs for patients with liver Glycogen Storage Disease?	Same	What are the effects of over the counter drugs on GSD patients?	54J	58J	66J	Link: See evidence check	Patient, carer and healthcare professionals
68	How can we improve genetic counseling and preconception care for patients and families with liver Glycogen Storage Disease?	Same	Are there any Types that both parents are not carriers? ~ is blood kinship related to parents having a child with glycogenosis? ~ Which is the probability that a GSD 1a patient has children with GSD?	68J	63J	57J	Link: See evidence check	Patient, carer and healthcare professionals
69J	What is the worldwide frequency (prevalence and incidence) of liver Glycogen Storage Disease?	Same	What is the incidence in the world about the gsd? ~ How many Hypoglycemics do you think are really GSDers?	65J	70	57J	Link: See evidence check	Patient, carer and healthcare professionals
69J	How to prevent and/or treat hematological problems (i.e. anemia) in patients with liver Glycogen Storage Disease?	Same	What is the incidence of Acute Myeloid Leukemia in adults with GSD1b? ~ Anemia ~ How can anemia be treated best?	61J	68J	63J	Link: See evidence check	Patient, carer and healthcare professionals
71	How can we improve counselling and perinatal management for patients with liver Glycogen Storage Disease?	Alteration: G1Pre1 How can we improve counselling and management for pregnancy and lactation of patients with liver Glycogen Storage Disease?	Pregnancy and GSD type 1b with Crohn's disease (stenosis present) and splenomegaly ~ Can the girl with GSD get pregnant? And how will the pregnancy? ~ How can I have a safe care in case of a possible pregnancy?	65J	72	66J	Link: See evidence check	Patient, carer and healthcare professionals
72	Should care be differentiated between male and female patients (with the same mutations) with liver Glycogen Storage Disease?	Same	Differentiate care between male and females with same mutation	72	71	66J	Link: See evidence check	Patient, carer and healthcare professionals