

GRSP INFORMAL GROUP ON PEDESTRIAN SAFETY

1st meeting

Paris, 4-5 September 2002

Draft detailed meeting minutes:

1. Welcome

The chairmen, Mr Mizuno and Mr Friedel opened the meeting and welcomed everyone. They thanked OICA for hosting the meeting and expressed the hope the group would work well together especially because the time schedule is very tight.

The secretary, Mr Van der Plas, reminded the group of the two documents distributed prior to the meeting.

INF GR / PS / 1 Rev 1: Agenda of the 1st meeting

INF GR / PS / 2: Terms of reference as approved by GRSP

2. Roll call

See attendance list (INF GR / PS / 7)

3. Adoption of the agenda

The agenda was adopted without amendments.

4. Confirmation of the task of the Informal Group on Pedestrian Safety (INF GR / PS / 2)

Mr Van der Plas summarized the Terms of Reference.

Mr Mizuno explained the rough time schedule emphasising the first key events:

- GRSP session of June 2003 where the preliminary report will be presented
- WP29 session of June 2003 where the preliminary report will be presented unofficially
- WP29 session of November 2003 where the preliminary report will be presented officially

Mr Mizuno added that at this stage it was unclear how many meetings will be scheduled and that the use of e-mail could help this group in lightening the number of meetings. He asked the group to be constructive when using e-mail and answer in time.

5. Discussion of general concepts of a draft GTR on pedestrian safety: proposed work plan

5.1 Accident study

5.1.1 Collect available accident study data and results (IHRA, others)

Mr Ishikawa (J) presented the IHRA accident study (INF GR / PS / 3). The main conclusions were:

- Head and leg are the most injured body regions
- Child head mostly injured by the top surface of the bonnet
- Adult head mostly injured by the windscreen glass but with the windscreen frame / A-pillar and top surface of the bonnet / wing as additional important sources
- Adult leg mostly injured by the bumper

Mr Langer (OICA) asked if there was data about head injuries differentiating between impact with the car and impact with the ground.

Mr Ishikawa (J) replied that out of a total of 897 head injuries about 176 related to the road surface.

Mr Césari (EEVC) explained the first task should be to assess the risk of pedestrians compared to other road users and how this changed over time. Also it should be looked at what car mix the data is based on because depending on the car mix (age) the injuries may have shifted.

Mr Mizuno answered that in IHRA the division was roughly 1/3 AIS1+ and 2/3 AIS 1 but it was difficult to differentiate between old and new cars.

Mr Césari (EEVC) replied that if data on the car mix could not be selected, it should be added as a remark to the report.

Mr Ries (OICA) referred to a new German study (GIDAS) with data up until 2001. This data could help providing an answer to the question from Mr Césari.

Mr Friedel remarked that many countries are missing in the IHRA data (only 1 EU country is included). So it would be worthwhile if new data could be provided. Also it should be investigated if the IHRA data could be differentiated on car age.

Mr Mizuno replied that most EU countries are member of IHRA. Of these, over a period of 3 years, only Germany was able to provide data, others did not have anything to contribute. However if data is available, please forward it to this group.

Mr Friedel said it is important for the group to agree on the accident data first otherwise the group would run into problems when discussing about the details.

Mr Saul (US) agreed and suggested it may be useful to look at the requirements the data studies should comply with. Some studies were not used in IHRA because they were not detailed enough but these studies could be useful for this group.

Mr Friedel agrees with Mr Saul: depending on the questions you want to answer a different level of detailed data is needed.

Mr Césari (EEVC) informed the group that EEVC/WG17 will meet next week and will discuss updated accident data (at least data from France and the UK is expected). This data could be made available to this group as well.

Mr Ries (OICA) offered to provide the group with the GIDAS data.

Mr van der Straaten (OICA) explained that UN has rough data including the number of pedestrian fatalities per UNECE country. This could be made available to the group as well.

Mr Pouget (OICA) asked the US if they provided data to IHRA on pedestrian injuries relating to light trucks and vans.

Mr Saul (US) confirmed that this is included in the IHRA data. This data dates from the mid nineties and the market share of light trucks and vans was lower than it is today. Data shows that for light trucks and vans more head injuries are related to the hood and that the severity of these injuries is higher as well. Overall pedestrian fatalities have reduced with around 40% over the last years although it did rise a bit last year. It is unclear why this rise occurred.

Mr Mizuno summarised the discussion stressing that vehicle categories will be discussed later. However the Terms of Reference mention light trucks and vans so these categories should be included in the accident data if available. All data should be forwarded to Mr Van der Plas by November 15 at the latest and will then be circulated to the group. Based on the available data conclusions will be made. Mr Mizuno also requested the Netherlands and Italy to check if they can provide data.

Mr Nacenta (Spain) promised to check if data from a hospital care survey can be made available.

Mr Ries (OICA) added that also ACEA may have additional data that could be of use.

The group received an update from those countries / regions that are currently developing national / regional legislation on pedestrian protection.

- Mr Doyle (EU) explained that the European Parliament in its June session gave the go ahead for the industry Commitment but in parallel called for the introduction of a Directive. The proposed draft Envelope Directive will be based on the Commitment and will set the limits / boundaries. The details would remain in the Commitment and not be copied. Publication of the draft proposal is scheduled for November. Answering a question from Mr Saul (US), Mr Doyle explained the contents of the Commitment / Directive which consists of 2 phases:
 - Phase 1: 2005 implementation including modified JRC test proposal on child head, adult head, lower leg and upper leg.
 - Phase 2: 2010 implementation aims at EEVC WG17 and has requirements for child head, adult head, lower leg and upper leg.

Mr Mizuno asked if Phase 2 could be replaced with the GTR.

Mr Doyle answered he could not answer this now. However when a GTR becomes available this will be considered and he added the EU is in principle in line with harmonisation.

Mr Friedel added that a lot will depend on the content of the GTR. The EU is in principle in favour to deal with the issue of pedestrian safety on a global basis since the proposal for a GTR came from the EU.

Mr Vroman (CI) asked whether the Commitment / Directive foresees that a car can comply with Phase 2 from the start (skipping Phase 1). Mr Doyle confirmed this indeed is foreseen.

- Mr Tanahashi (OICA), Mr Yamaguchi (OICA) and Mr Ishikawa (J) explained the situation in Japan (INF GR / PS / 4 Rev1). The focus for the short term is a reduction of the number of fatalities, on the longer

term leg injuries will be included as well. Japanese proposals will follow the IHRA decisions. The content of the draft proposal includes child and adult head tests with two different impactors (3,5 kg and 4,5 kg); impactor speed of 32 km/h; angle of the test as a function of the vehicle shape; HIC < 1000 for 2/3 of the area and < 2000 for 1/3 of the area; Wrap Around Distance of 1000 – 1700 mm for the child zone and 1700 – 2100 mm for the adult head zone. Entry into force is September 2005 for new types and September 2010 for all vehicles. A later entry into force date (respectively September 2007 and September 2012) is foreseen for very low vehicles, vehicles with high durability (SUV or CV), full cab over vehicles and hybrid powered cars.

Mr Mizuno added the Japanese draft proposal has not been released officially yet.

Mr Friedel asked why both head impactors have same diameter (165 mm).

Mr Ishikawa (J) answered this originated from discussions within ISO. A 6 year old child has a head diameter of 165 mm although this seems a bit small for adults. However the mass has the biggest effect, the moment of inertia is important and could result in rotation and an effect on HIC.

Mr Mizuno expressed his hope that Contracting Parties to the '98 Agreement would utilise the GTR once established. His understanding is the Japanese government will do this.

5.1.2 Based on the accident statistics, determine the body regions of pedestrians that need to be addressed, the targeted crash speed and others

Mr Mizuno said that based on the IHRA data tentative conclusions could be reached which can be reviewed once more data is available. From earlier discussions the first priorities are head and leg for the body regions. Mr Mizuno will ask NHTSA to put the IHRA 2001 report on the website since this is a basic document for this group: the report can be found on <http://www-ihra.nhtsa.dot.gov>.

Mr Saul (US) remarked that the group should not only look at the body regions but also quantify the cost to society of those injuries. This could influence the selection of body regions. The test procedures the group will agree upon should lower the risk on injuries. Have there been any studies that have looked at that?

Mr Mizuno pointed out that the terms of reference mentions feasibility and cost effectiveness and this will be important factors.

Mr Ishikawa (J) answered there had been a rough estimate of the benefits in Japan (reduction of fatalities / injuries) but he didn't have the exact numbers available. Also Japan is looking into the technical feasibility of their draft proposed legislation.

Mr Doyle (EU) said one could start from the assumption that anything is feasible. He added that the Honda Civic almost meets the requirements anyway. He also referred to a MIRA study on cost effectiveness.

Mr Tanahashi (OICA) replied that even for the Honda Civic meeting the requirements is still far away and that today no one knows how to accomplish those targets. He added that industry gave a lot of information on feasibility to the Japanese government. This is one of the reasons why Japan hasn't published its legislative proposal yet.

Mr Friedel asked if someone had any proposals / opinions about the test speed.

Mr Mizuno replied that the Japanese proposal was based on a 40 km/h car to pedestrian crash speed.

Mr Césari (EEVC) explained that EEVC was looking at a similar value. He added that the group should agree on a range since injuries are related to speed.

Mr Ries (OICA) highlighted that 40 km/h is the limit for which countermeasures are feasible.

Mr Saul (US) explained IHRA data shows it changes by region. The speed may depend on how urban or how rural an area is.

Mr Ishikawa (J) explained that AIS2+ injuries of all body regions have a similar distribution in Japan, US, EU and Australia. Around 75% of the injuries is covered with a speed of 40 km/h.

Mr Friedel summarised that as preliminary conclusion a car to pedestrian crash speed of 40 km/h can be chosen.

Mr Ries (OICA) explained there may be a need for PMHS data and computer simulation together with new full scale tests to be done especially when considering new vehicle categories. Additionally the VDA/TNO2 study can clarify the test conditions. This study includes updated models but is not published yet.

Mr Ishikawa (J) explained that IHRA is trying to improve the pedestrian simulation models.

Mr Friedel asked if the car industry was offering to pay for the new tests.

Mr Ries (OICA) said he could not promise this but he would look into it.

Mr Césari (EEVC) explained EEVC is working on a plan but it would not be ready by the end of 2003. However it would be ready in time for this group to include it in its final report (end 2005).

Mr Mizuno explained this is acceptable since the 2003 report would only talk about the general concept and not about specific details.

Mr Saul (US) stressed that the group should use IHRA since IHRA looked at all available data. He added it would be useful to know what IHRA is doing and by when.

Mr Mizuno explained that IHRA has nearly finished the work on the head tests and that they expect to finalise it within this year. The work on the leg was originally scheduled to be ready by 2005 but he would try to accelerate this to be ready by Spring 2004 in order to feed this work to the group as well.

5.2 Test method: use of sub system tests?

Mr Friedel asked if anyone had any other suggestion for the specification of the testing system (next to sub system tests). He asked if sub system tests is the appropriate way for future global testing? He added a robust repeatable method would be preferable on a global forum.

Mr Ries (OICA) suggested to continue with subsystem tools but these should be correlated to the respective tests. Mr Mizuno stated a simple, reliable, repeatable test is better for legislation. For research simulation, PMHS and a dummy can be very helpful. Also IHRA proposes sub system tests.

Mr Ries (OICA) added that experience learned it is premature to bring a dummy in legislation.

Mr Césari (EEVC) agrees on sub system tests but wants to keep the option of simulation tests open. For example, simulation could be of assistance in the selection of the most severe impact point.

Mr Mizuno agreed to this.

Mr Castaing (F) explained he will inform the group about results of a study UTAC is performing. This study looks into the possibilities of simulation (how can simulation help to look at limits, validation of tests, ...).

5.3 Decide on vehicle categories that need to be addressed

Mr Friedel explained the scope was mentioned in the terms of reference. He asked if we need a definition for light trucks / vans / passenger cars.

Mr Ries (OICA) replied that the shapes are important. Need PMHS test for exotic shapes not tested before. These exotic shapes could be excluded from the scope. A new field of definitions may be needed (definition of the shapes relevant to pedestrian injuries).

Mr Friedel explained that shapes are well known in research literature.

Mr Mizuno agreed that the shape is very important. IHRA specified 3 group of shapes: sedan, SUV, 1-box. IHRA could provide this data.

Mr Friedel agreed to use the IHRA data and check if / how light trucks / vans / exotic shapes are included.

Mr Saul (US) referred to the work being done by GRSG on the classification of vehicles and this should be taken into account as well. He added that pedestrians do not know which shape will hit them and that we wouldn't want a GTR not to apply to a new shape not included in current considerations.

Mr Mizuno stated that industry should provide information on future shapes.

Mr Césari (EEVC) noted that the consequences and conditions depend on the shape so the shape should be taken into account.

Mr Pouget (OICA) explained that sub system tests are adopted to specific shapes. Other shapes means new validation will be necessary.

Mr Friedel concluded these ideas / problems should be mentioned in the preliminary report.

Mr Césari (EEVC) explained that simulation (when validated) can help in defining test conditions for new shapes.

Mr Saul (US) stressed the report should explain the desire to include all shapes but based on current data we have 'only' limited the work to specific shapes now.

Mr Ishikawa (J) explained INF GR / PS / 6 which is information from Japan on the work underway by the GRSG Common Tasks group. The scope of the GTR should reflect the outcome of the GRSG Common Tasks Group.

5.4 Other items that need to be discussed and assignment of tasks

5.4.1 Technical feasibility

Mr Ries (OICA) presented the IHRA feasibility study (INF GR / PS / 5) which deals only with head impacts. The main conclusions are:

- No vehicle fulfils EEVC/WG17 requirements completely
- No traditional solution possible to pass EEVC/WG17 requirements (not possible with padding only)
- No sensor techniques are available yet to offer other solutions

Mr Mizuno welcomed this first proposal and stressed this will need to be updated by industry. If other members of the group have information as well, this would be welcomed.

Mr Saul (US) asked what area of the car we would cover. Will the windshield, A-pillars, windshield frame, ... be included or excluded? This question relates to feasibility and the target population.

Mr Mizuno repeated what had been concluded before (see item 5.1.1) and added that based on the technical feasibility final conclusions would be made.

Mr Césari (EEVC) clarified what is included in the EEVC proposals.

Mr Ayrat (CLEPA) added that about technical feasibility, CLEPA is in line with OICA.

Mr Langer (OICA) clarified that the OICA paper says that no car on the market fulfils the requirements. He asked if a HIC limit of 1000 is the right way to start with such a new area of safety or should we start at a higher HIC limit in order to make it feasible to meet it. Motorcycle helmets have a limit much higher than 1000 otherwise it would not be feasible to meet it. He proposed a similar level to start with and when more technology becomes available this HIC limit could be lowered.

Mr Mizuno stressed that biomechanical data is detrimental in this respect.

Mr Césari (EEVC) agreed that there are questions about the risk curve of HIC and that HIC has some limitation. However, the tendency to use a HIC limit of 1000 exists.

Mr Ishikawa (J) explained that HIC is a value of injury risk. Even a HIC of 2000 protects pedestrians. Except for the helmets test a HIC of 1000 is used. If this group elects to choose a different value, a very thorough justification will be needed.

Mr Mizuno summarised that there is no objection to introduce a HIC limit of 1000 or a different limit. If a different limit is chosen however, a very good justification is needed.

Mr Doyle (EU) explained that Phase 1 of the Commitment has a split between a HIC of 1000 and 2000. However Phase 2 of the Commitment has only a HIC of 1000 as target. The GTR has to move forward, if it would move backwards, this would need a very good reason.

Mr Friedel suggested the speed could be reduced instead and the HIC limit of value could be kept.

Mr Castaing (F) added that a lot depends on the instrumentation as well. The helmet test uses a rigid headform and the HIC limit of 2400 was selected because there is no biofidelity in the headform. In this case it is a limit for the test and not for the human.

Mr Ries (OICA) explained that the revision phase foreseen in the Commitment could still change the HIC limit.

Mr Doyle (EU) agreed but said the intent of the target is very clear: $HIC < 1000$.

Mr Saul (US) explained that HIC probability curves are used for years by NHTSA. If other criteria exist, they should be considered now but he is not aware anything else exists.

Mr Friedel added that HIC is well accepted and used in areas not designed for (like side impact for example).

Drawbacks are known, people are working on it but worldwide no alternative has been found yet. Another value / parameter will cost a lot of time / money to convince the world.

Mr van der Straaten (OICA) asked if the HIC limit has a 15 ms or 36 ms basis.

Mr Mizuno confirmed that IHRA, ISO and EEVC use the 15 ms basis.

Mr Nacenta (Spain) referred to the hospital care data which shows that 20% of the fatalities were pedestrians. For all road users this is around 10% (fatalities / injuries). With a HIC of 2000 for pedestrians, the chance of survival would become the same for all road users.

Mr Rentschler (OICA) remarked that the HIC value should be discussed in relation to the test tool.

Mr Césari (EEVC) suggested to establish a range of HIC values for a biofidelic impactor.

Mr Saul (US) asked if we needed this much detail in the preliminary report to WP29.

Mr Mizuno answered that the preliminary report only deals with the general concept and that detailed discussions would follow afterwards.

Mr Saul (US) highlighted the difference between IHRA and EEVC in the headform tools. The sooner the group decides on the tool the earlier it can be included in further studies (such as feasibility).

Mr Mizuno agreed to this approach.

Mr van der Straaten (OICA) added that the preliminary report should concentrate on the accident data as basis for its justification.

Mr Rentschler (OICA) added that another justification is that we have two sets of different legislation (EU and Japan) and the goal is to harmonise these.

Mr Doyle (EU) added that the two steps mentioned in the terms of reference are not separate items but overlap.

Mr Friedel agrees.

Mr Saul (US) suggested to move on with step 2 as soon as possible if we want to meet the 2005 target.

Mr Mizuno asked if Japan had any idea how to harmonise between the EU and Japan.

Mr Ishikawa (J) said the test tools would be the first priority for harmonisation but also the test procedures should be looked at.

Mr Saul (US) said an agreement on the mass for the child head should be reached before phase 2 of the Commitment.

Mr Ishikawa (J) explained 3,5 kg was chosen for the child head mass because 6 year old children are most injured. 2,5 kg is for children up to 3 years old but these are a very small part of pedestrian accidents.

Mr Pouget (OICA) said the group should think about a set of tools: feasibility, limits, impactors, everything is connected. Maybe there should be two steps in the GTR: harmonisation of EU and Japanese requirements followed by a completely new GTR.

Mr Doyle (EU) warned the GTR discussions should not be limited to a harmonisation between Japan and the EU but should also look at what is feasible and look in an open manner to the speed, limits, ... The EU and Japanese proposed legislations should only serve as background.

Mr Mizuno concluded that if the EU and Japan want to harmonise their legislation now (for Phase 1 of the Commitment / Directive and the draft proposed Japanese legislation), this would be welcomed but is not the task of this group. This group must develop a GTR based on all available information.

Mr Doyle (EU) added that the EU process for a Directive has started and will not stop so it is not reasonable to talk in this group about making changes to it. The EU is only one of the Contracting Parties around the table.

Mr Friedel emphasised that the IHRA work was to harmonise research and feed that to a group like this.

Mr Mizuno added that if the EU and Japan could harmonise the 3,5 kg impactor it would be a good first step.

Mr Ishikawa (J) agreed but emphasised that time was very short and that Japan had almost finished its proposal.

Mr Rentschler (OICA) said it is too late to change Phase 1 of the Commitment and the Japanese proposal but the common goal should be that the GTR would be used once established.

Mr Doyle (EU) confirmed this indeed is the goal.

5.4.2 Cost effectiveness

Mr Saul (US) explained that the US has to show a cost benefit analysis for every new legislative proposal. This includes a definition of the safety problem, development of a test procedure / performance criteria (IHRA has done much of this work) and potential countermeasures with associated cost. The '98 Agreement requires a similar approach.

Mr Mizuno agrees and added that it is too early now but that everyone should keep it in mind for future discussions.

Mr Pouget (OICA) referred to a study done in the US years ago and suggested the same procedure could be followed.

5.4.3 Influence of other regulations

Mr Mizuno mentioned front impact, side impact, visibility requirements and fuel consumption that could influence the GTR.

Mr Ries (OICA) emphasised that fuel consumption improvements made, should not conflict with pedestrian requirements.

Mr van der Straaten (OICA) explained the need for a step by step approach: have to know first what will be part of the GTR. Also consumer and environmental constraints should be taken into account.

5.4.4 Others

Mr Mizuno referred to the terms of reference that also mention active safety. Under GRSP we can discuss about passive safety, but other GRs are responsible for active safety. He asked what the EU intentions are.

Mr Doyle (EU) explained the Commitment includes an annex with examples of new technologies that could contribute to pedestrian safety. The mentioning of active safety in the terms of reference is a reflection of that.

Mr Saul (US) stated this could effect the overall scope of the GTR and asked if there are any research projects that could feed the group on active safety.

Mr Doyle (EU) explained they have nothing under preparation. The purpose is to keep an eye on other developments that could have influence on pedestrian safety.

Mr Friedel explained the accident situation could change over time due to new technologies. Example if ESP would change the type of accident dramatically, this should be taken into account.

Mr Mizuno repeated that technical feasibility is a limit for the crash speed. If active safety can reduce the crash speed, more pedestrian accidents could be covered with the passive safety requirements. Suggestions about active safety measures can be made in the report.

Mr Friedel asked if Japan had considered active safety during their discussions on their proposed pedestrian legislation.

Mr Ishikawa (J) confirmed they discussed the effectiveness of brake assistance systems but no real study was done so far although it is considered as potentially beneficial.

Mr Mizuno said he was open for ideas and these would be added to the preliminary report.

Mr Langer (OICA) asked how secondary impact would be addressed.

Mr Mizuno said this could be mentioned in the report but a solution cannot be suggested.

Mr Friedel suggested simulation could calculate absorbed energy when a pedestrian hits the car and estimate the effect when the pedestrian hits the ground during the second impact.

Mr Césari (EEVC) suggested to split the injuries and take only those into account that relate to the car. He added that the secondary impact is even less repeatable. Often it is not the head that hits the ground first but other body parts. So there is no direct relation to the drop height. Maybe there is a relation with the vehicle shape, the accident studies could possibly provide answers.

Mr Mizuno concluded that the group should try to find an answer when collecting the accident data.

Mr Saul (US) emphasised that the GTR should build on IHRA. Many steps have already been taken by IHRA. Did the IHRA work include reproducibility, repeatability studies?

Mr van der Straaten (OICA) suggested to develop an action plan with assignments including deadlines.

Mr Doyle (EU) wanted to clarify that the two steps for the GTR are not separate but one continuous move to a GTR. He also explained the need for an overall timescale with milestones, decisions, ...

Mr Mizuno and Mr Friedel will develop this together with Mr Van der Plas.

Mr Friedel added that the preliminary report should include accident data, feasibility and a list of problems.

Mr Ries (OICA) mentioned that when IHRA discusses about the leg impact, there should be no negative effects on the child head.

Mr Mizuno agreed this should be taken into account but that there are doubts about the VDA study. He added that it is the responsibility of the manufacturer since a lot depends on the selection of the shape of the vehicle.

Mr Castaing (F) added that similar problems exist in front and side impacts with out-of-position situations. This is also a responsibility for the manufacturer to take this into account since there is nothing specified in legislation.

Mr Mizuno explained the need to quantify how many fatalities / injuries can be reduced by the proposals and which AIS level should be addressed.

Mr Césari (EEVC) stated not only fatalities should be addressed because the leg is related to injuries only. Also the selected speed of 40 km/h means injuries should be addressed as well. The focus however should be on the most costly injuries and on permanent disability.

Mr Ishikawa (J) said the focus is on AIS2+ injuries in IHRA and agrees permanent disability should be taken into account.

Mr Vroman (CI) said the GTR should at least offer the same reduction, and preferably a bigger benefit, as current EU and Japanese legislation.

Mr Mizuno answered that the level of protection will depend on the GRSP / WP29 decision.

Mr Van der Plas summarised the conclusions of this meeting:

Basic goal of the group: Establish a GTR that can be used by all Contracting Parties to replace existing national / regional legislation or to establish new legislation.

5.1.1 Collect available accident study data and results

- Accident studies to be provided by November 15 from:
 - EEVC including new data from France and UK
 - OICA
 - GIDAS
 - UN periodic data
 - ACEA data
- The Netherlands and Italy to check their national data (if available)
- Spain will check if the hospital care survey can be of use.

5.1.2 Based on accident statistics, determine the body regions of pedestrians that need to be addressed, the targeted crash speed and others

- Based on the total input conclusions will be made
 - Assess risk of pedestrians compared to other road users
 - Change of pedestrian risk over time
 - Establish basis for test procedure (speed, body regions, car area, ...)
- Based on the IHRA data preliminary conclusions were made (to be checked when above studies (see 5.1.1) have become available):
 - Head and leg are the most injured body regions
 - Child head mostly injured by the top surface of the bonnet
 - Adult head mostly injured by the windscreen glass but with the windscreen frame / A-pillar and top surface of the bonnet / wing as additional important sources
 - Adult leg mostly injured by the bumper
 - 40 km/h as limit for the car to pedestrian crash speed
- Additional possible research sources were offered by
 - OICA: PMHS data, computer simulation, full scale tests especially taking into account new vehicle categories, VDA/TNO2 study
 - EEVC: working on a plan; not ready by the end of 2003 but will be ready by 2005
 - IHRA schedule:
 - head requirements expected to be finalised this year

- leg requirements to be finalised by 2005 but will try to speed it up to be ready by Spring 2004 in order to include it in the draft GTR.

5.2 Test method

Sub system tests are the best way forward but simulation could offer additional possibilities.

France will check how simulation can assist in determining limits, validation of test results, ...

5.3 Decide on vehicle categories that need to be addressed

- Vehicle shape is important. The shapes specified by IHRA can serve as basis and it needs to be checked how light trucks / vans / exotic shapes can be included (if not included yet). If additional shapes are identified to which the sub system tests have not been validated, this should be mentioned in the preliminary report.
- Take into account the work of the GRSG Common Tasks group.

5.4.1 Technical feasibility

- OICA gave a first input based on the IHRA study (dealing with the head only). This will need further discussion and updating.
- All attendees are requested to provide information if available.
- HIC limit to be either 1000 or different (higher); if higher a very good justification will be needed.

5.4.4 Others

- Include suggestions on active safety in the preliminary report
- Try to assess the importance of the secondary impact by using accident data and maybe by using simulation
- Set up an action plan with assignments, deadlines and guidelines for first report
- Make sure the leg test has no negative effect on the child head

6. Next Meeting

A half a day meeting will be held on the morning of December 10, 2002 before the start of the official GRSP session.

The venue will be the same meeting room as the official GRSP session in the Palais des Nations in Geneva, Switzerland.

The next big meeting will be held on January 15 and 16, 2003. The meeting venue is preliminary set at the OICA offices in Paris. If other suggestions are made, the group will be notified.

7. A.O.B.

Mr Friedel thanks the group for their co-operation and OICA for their organisation and closes the meeting.