Unusual Testing

Lessons learned from being a Casualty Simulation Victim

Nathalie Rooseboom de Vries van Delft
Who am I?
Topics

What is Casualty Simulation?

Examples

A familiar software testing process in an unfamiliar environment

Lessons Learned
What is Casualty Simulation?

**Simulation** of trauma’s, sickness and injuries by moulage, acting and staging **to train (or test)** emergency medical staff, first aiders and first responders.

In Dutch this is called ‘**LOTUS**’, which stands for ‘**Landelijke Opleiding Tot Uitbeelding van Slachtoffers**’ (National Education for Impersonating Victims).

Every Casualty Simulation victim in the Netherlands has a First Aid Certificate and has done the **training** of approximately two years concluded with an exam.
The real deal...
A familiar software testing process...
...applied in an unfamiliar environment

- Setting Goals
- Getting information
- Setting up environment
- Setting up the scenario
- **Preparing artificial trauma** (moulage)
- Determining specifics

Ijmuiden 2009 – disaster drill ‘Livex’
...applied in an unfamiliar environment

- Stay in role, exception: “no play”
- Mind safety
- Play with **regards to goal**
- Stick to the rules
- Remember / record
- **Making it as real as possible...**

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**EXECUTION**

Schiphol 2010 – disaster drill ‘Fopper’
...applied in an unfamiliar environment

- Start with GOOD points
- End with **WHAT TO IMPROVE (!!)**
- Make sure it lands!
- Help with solutions

**COMPLETION**

Drill for preparation of “VlootDagen” 2010
Examples

What is Casualty Simulation?
A familiar software testing process in an unfamiliar environment

Examples

852 casualties
193 casualties
Examples

- Goal: large scale drill for evacuation of Ferry at Sea to prevent repetition of disasters like ‘Estonia’
- Information: fire on board. Many casualties. My character had massive bleeding slash wound on leg with rapidly developing shock
- Preparation: making the moulage, clothing, setting up scenario
- Specify: mind first-aid on board and evacuation procedures, mind first-aid in casualties tent
- Execution: Play the role! – **have fun**!
- Evaluation: Good on-board help, reassurance. Some major faults; water- > shock, tourniquet → loss of limb; prioritization of trauma
- NO PLAY situation: hypothermia of many casualty simulation victims
Examples

Nagespeelde barensnood

Simulatietraining helpt bij het voorkomen van fouten bij bevallingen. ‘Iedereen kan een black-out krijgen.’

Examples

Lessons Learned
Lessons Learned
From the Casualty Sim’s view

• The more the scenario is prepared the better the execution and the results from a drill.

• **Checklisting** is a most adequate and very accurate tool during all phases of a scenario or drill.

• Better casualty simulation victims result in better performance and results from the drills; **practice! education!** **Domain knowledge!**

• PSEC/E! Prepare, Specify, Execute, Close/Evaluate.
Lessons Learned
From the Drill’s view

- **Communication** is a pitfall in EVERY larger drill, especially at transfers
- No matter how good the scenario is prepared, in a very large number of drills things go differently
- In a large number of drills it takes **LONGER** to complete the scenario than anticipated
- Even though it is a drill and participants are thus (partly) prepared (note in real life this is not the case!!) help is not adequate: not a very comforting thought is it?
- The use of **observant(s)** can help see things that you don’t notice yourself
- The use of **checklists** prevents CRUCIAL mistakes; TOPpen
- **Speak up!**
- ‘Bijvangst’ (**added benefits**) of drills

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Lesson: Evaluation of Moulage

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Lessons Learned – Evaluation

**What is Casualty Simulation?**

A familiar software testing process in an unfamiliar environment.

Examples

[Images of flooded areas showing the impact of Casualty Simulation.]

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Lessons Learned – Evaluation

FLOODEX: Large drill of flood disaster to test protocols for incoming foreign help
Lessons Learned
From the Floodex Evaluation...

“We learn much more from the few things that go wrong than from the many that pass without a glitch”

“.A first requirement is that participants can see who is doing what and why...”

“Another major issue is ‘language’, ‘terminology’ and ‘jargon’. Not all participants speak English and not all those who claim they do – for example the Dutch- speak it in such a way that the English would necessarily recognize it”

“...when conversational language was not an issue, the use of jargon and acronyms where. There was a tendency to assume that the foreign units understood a jargon that the Dutch believed to be universal but that was in fact very much their own”

“One cannot expect the Dutch civilians being saved, to understand ‘Latvian’ or ‘Polish’...
Lessons Learned

Checklisting prevents crucial mistakes
Lessons Learned

Checklisting prevents crucial mistakes

TOP VK+

Start TIME OUT

<table>
<thead>
<tr>
<th>PAR</th>
<th>Wat is de naam van de patiënt?</th>
<th>VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAR</td>
<td>Wat is de geboortedatum van patiënt?</td>
<td>VP</td>
</tr>
<tr>
<td>VP</td>
<td>Medische indicatie?</td>
<td>PAR</td>
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<tr>
<td>VP</td>
<td>Is er sprake van allergie?</td>
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<tr>
<td>VP</td>
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<td>VP</td>
<td>Is er sprake van maternale ziekte?</td>
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<tr>
<td>VP</td>
<td>G? P? Zwangerschapsduur?</td>
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<td>Zijn er nog speciale risico’s?</td>
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<td>Moet het OK team standby zijn?</td>
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<tr>
<td>VP</td>
<td>Moet de kinderarts standby staan?</td>
<td>PAR</td>
</tr>
<tr>
<td>VP</td>
<td>Wat zijn de kritieke momenten?</td>
<td>PAR</td>
</tr>
</tbody>
</table>

Debriefing

Zijn er nog bijzonderheden?

- communicatie gerelateerde CRM
- speak-up
- pas-op-de-plaats
- echolalie

instrumentarium
uitvoering

PAR = parteur
VP = verpleegkundige

Checklist Pre-eclamptia

Let op! De medicatie concentraties wijken af van de protocolwijzer geneesmiddelen volwassenen

- Dreiging van eclampsie → controleer partus kar medicatie (magnesium, betamethason, calcium gluconate)

<@

- Bij eversnoedig activeren en arts laten waarschuwen

<@

- Geen arts aanwezig en/of geen infuus

<@

- Zorg voor continu 0.9% - registratie en rust op de VK

<@

- Indien patiënt nog geen infuus; zet klaar voor inbrengen infuus en afnemen kuitbloed en toegepast lab (niet samen op een lijn met kleuren)

<@

- Indien nog niet gegeven: bolusmedicatie.

<@

- Bereiding continue medictie toebediening op infusiepomp; magnesiumfaste 5 gr = 50 ml (1 gr / 10 ml)

<@

- Aansluiten op NaCl 0.9% - lijn; is voor de toediening van magnesiumentaal niet absoluut nodig

<@

- In opdracht van arts: infusiepomp in dosering van 1 gram (=10 ml/uur) tot max. 3 gram (30 ml/uur)

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- Dosering: pompstand 1 gram/uur 10 ml/uur

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- 2 gram/uur 20 ml/uur

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- 3 gram/uur 30 ml/uur

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- Na vier uur: spoelg → straatwaarder 2 - 4,5 mmol/L.
Lessons Learned

Speak Up!

The co-pilot **SAW** the mistake made, but didn’t want to object to his superior ...
Summary

Casualty Simulation is unusual testing

Be aware of communication, jargon and terminology

Checklisting is a very powerful tool

Speak Up! Mandatory stuff!

Added Benefits, the stuff that adds!

Software testing processes can be used in other environments as well as other environments can be an inspiration in software testing

We learn more from a few things that go wrong than from the many that pass without a glitch

The more ‘Real Life’ the better the results, this requires skills, preparation and domain knowledge
Questions?
More information...

- Mail: nathalie.van.delft@capgemini.com
- www.organisatieLOTUS.nl (NL)
- www.lotus-nederland.org/ (NL)
- http://www.casualtiesunion.org.uk/ (UK)
- http://rud-team.de/ (DE)
- http://www.militarymoulage.com (US)