VIRTUAL PATIENT IN PHARMACY EDUCATION

HOW TO MAKE IT WORK AND WORTH

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Virtual patient

„interactive computer simulation of real-life clinical scenarios for the purpose of medical training, education, or assessment” *

Advantages:
- self-directed access and learning
- test of knowledge and skills in a safe environment
- exposure to rare cases
- solve some ethical problems
- easy to update knowledge
- less stressful learning

Purpose

To support curriculum with virtual patients technology and provide effective teaching and learning strategy = create a virtual patient
Methods

DecisionSim™

- standards-based virtual patient platform for authoring and delivery of branched narrative case

Diabetes mellitus type 1

- Pharmaceutical Care - eligible disease
- patient behaviour directly linked with health outcome
- any wrong decision may shortly lead to serious negative health consequences
- patient knowledge and competence is crucial to maintain proper blood glucose level and minimize the risk of complications
Methods

- **Virtual patient case**
  - target audience: fifth-year undergraduate pharmacy students
  - voluntary module: part of mandatory Pharmaceutical Care course
  - prerequisite courses: pathophysiology, pharmacokinetics, pharmacology, toxicology, pharmacognosy and epidemiology
  - self-directed learning
  - scoring:
    - baseline: 100 points
    - optimal decisions do not change the scoring
    - improper decisions: -1/-2/-5/-10/-20 credits based on the severity of the possible consequences of each decision (e.g. -20 for avoidable hospitalization, -5 for unnecessary referral, -2 for dispensing drug that could moderately harm)
  - obligatory pharmaceutical care process documentation
Virtual patient case

- **Patient description**
  - 17-years old woman
  - known by the pharmacist for several years
  - recently diagnosed with diabetes type 1
  - insulin therapy prescribed
  - her parents and herself feel confused and uncertain about the disease and its treatment, they ask pharmacist for help
  - depression diagnosed during the case
# Virtual patient case

<table>
<thead>
<tr>
<th>Diabetes specific problems</th>
<th>Non-diabetes specific problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>insulin therapy rules and therapy effectiveness evaluation</td>
<td>mood disorders (depression management, referral)</td>
</tr>
<tr>
<td>techniques of the insulin administration</td>
<td>management of upper respiratory tract infection symptoms</td>
</tr>
<tr>
<td>blood glucose meter use</td>
<td>assessment and interpretation of patient’s quality of life</td>
</tr>
<tr>
<td>modification of therapeutic regimen to control hyper-/hypoglycemia or comorbidities</td>
<td>analgesic drug choice (aspirin and paracetamol /acetaminophen)</td>
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<tr>
<td>impact of medications, substances (marijuana) and infections on blood glucose level</td>
<td>amoxicilline and oral hormonal contraception - the contraceptive effect possibly decreased</td>
</tr>
<tr>
<td>development of diabetes monitoring plan</td>
<td>therapy costs</td>
</tr>
<tr>
<td>development of patient education plan</td>
<td>off-label use (inhaled formoterol)</td>
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<tr>
<td>patient compliance monitoring</td>
<td>perception of pharmacist’s and physician’s professional competences</td>
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<tr>
<td>role and options of contraception in diabetes</td>
<td>patient’s winter holiday apart from home</td>
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Virtual patient case
Virtual patient case

- Results
  - 76 out of 151 students decided to solve the case
  - positive perception of the learning/teaching method
  - case perceived as challenging
  - average students’ performance
    - mean scoring was 38 out of 100 credits
    - best student – 78 credits
Virtual patient case - conclusions

- **Teacher perspective**
  - case preparation is time consuming yet the didactic results are worth the work
  - software usability influences the teaching experiences

- **Learner perspective**
  - positive perception despite of significant educational challenge
Recent situation

- Virtual patient with diabetes type 1 adopted as mandatory case during Pharmaceutical Care course

- Virtual patient created by the pharmacy students who participated in the experiment (patient suffering from venous thromboembolism)

- Virtual patients used in pre- and post-graduate pharmacy teaching
Thank you

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