Make it so: enacting resilience in everyday work

Day 2

Dynamic manpower and task management in the pharmacy department to respond to a varying environment

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Outline

• Everyday clinical work in the medication dispensing unit in the Inpatient Pharmacy Department (PD) of our university hospital.
  – To illustrate a gap between WAI and WAD on dispensing and verifying of medications by pharmacists
  – To identify adaptive behaviour of pharmacists in a given environment
  – To propose possible strategies to foster and sustain hospital-wide resilience.

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Safety-I efforts for the specific event

• The incident in the dispensing unit
  – Planned: Prednisolone tablet 1mg
  – Actual: Predonine tablet 5mg

• Proposed action

29 incidents/560,000 recipes/year
“Work-As-Imagined” on the medication dispensing unit

Physicians

Medication order

Inpatient wards

Delivery

Pharmacist

Prescription checking

Dispensing

Verification

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“Work-As-Done”
on the medication dispensing unit

On-site observation

Dispensing

Phone calls

Dynamic & Flexible

Independent verification

Counter services

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Research Question

• How do pharmacists get the job done in the varying environment with limited resources?

• Focus
  – External variability
  – Resource constraints
  – Performance adjustment

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Workforce & work places of the Inpatient Pharmacy Department

71 pharmacists (1074 beds)

- Oncology center (23)
- Inpatient wards (11)
- Others (18)

Medication dispensing unit (19)

- Oral/External drugs (13)
  - Tablets & others (10)
  - Powder (2)
  - Liquid (1)
- Injection drugs (5)
- Operating room (1)

1,800 recipes in 900 prescriptions a day

Target place

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Data repository/ observation

No. of prescriptions verified in the medication dispensing unit

739 prescriptions (8:30 - 17:00)

Dynamic manpower management to control processing power

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Phone calls & counter services

• Phone calls:
  – Every 4 minutes (139 per day), 193 minutes in total
  – 40%: requests for the counter services
  – 16%: request for hopping into delivery
  – 15%: Asking about the delivery status

• Counter services:
  – Every 11 minutes (49 per day)

Medication delivery system (frequency & status information)
No. of prescriptions that was verified in the individual level

<table>
<thead>
<tr>
<th>Day</th>
<th>No. of Prescriptions</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>723</td>
<td>(37.2)</td>
</tr>
<tr>
<td>Tue</td>
<td>582</td>
<td>(31.8)</td>
</tr>
<tr>
<td>Wed</td>
<td>526</td>
<td>(28.7)</td>
</tr>
<tr>
<td>Thu</td>
<td>402</td>
<td>(28.7)</td>
</tr>
<tr>
<td>Fri</td>
<td>664</td>
<td>(42.8)</td>
</tr>
</tbody>
</table>

No. of verifications by the leader pharmacist

<table>
<thead>
<tr>
<th>Day</th>
<th>Leader</th>
<th>Skilled</th>
<th>Novice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Tue</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>Wed</td>
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<td>O</td>
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<tr>
<td>Thu</td>
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<td>O</td>
<td>–</td>
</tr>
<tr>
<td>Fri</td>
<td>O</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Major functions of pharmacists in the dispensing unit

- Dispensing
- Responses to phone calls
- Counter services
- Verification
- Instructions
- Teaching
- Management

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A task tapestry of the unit leader pharmacist

Dynamic task management

On-site data collection

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A book shelf model for dynamic task management

8:30

Book Shelf

16:30

Packetizing

Squeezing

Pushing

Total work

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The simple rules of individual behavior

1. Provide care/medication to patients
2. Work efficiently in the limited time
3. Solve problems within their authority

Macro

Micro

• Cohesion
• Separation
• Alignment

Takotsubo
(an octopus pot/a silo)
“Takotsubos” and interdependency

- Insufficient number of skilled pharmacists
- Lack of information on the delivery status
- Infrequent medication delivery

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To synthesize hospital-wide resilience

- Don’t rely on adaptation only
- Develop individual capacity of dynamic task management
- Use resource buffer in a larger system
- Implement an across-the-boundary approach for total optimization
Let’s break the takotsubo and work together!

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