

Developing and implementing clinical pathways

EAHP congress 2016 – Vienna
V. Fortineau



**Conflict of interest
Nothing to
disclose**

Who am I?



Master degree in mechanical engineering
PhD in Information Systems
4 years teacher at Arts et Métiers engineering school
2 years founder at Khtema company
Started working with hospitals in 2012

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Interactive query Yes or No

Please give your answers to the questions

1. Do you think process mapping is only used by quality services and audit officers and are stored in never-opened-folders?
2. Do you think you have implemented process management in your unit?
3. Do you think this skill is relevant for the hospital pharmacist?

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Interactive query Yes or No

1. IDEF0 is a standard language used to map processes (and you actually use it).
2. In planning / scheduling activity, the method is specific to the end-user domain but the tools and execution are comparable.
3. Clinical pathways are processes like any others at the hospital.

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Agenda

- Introduction on process-based approaches and process management
- Process management to enhance collaboration: illustration at the Day-hospital and on drug downstream logistic
- Clinical pathways to plan an schedule operations: application to an ambulatory clinic.
- Monitor and manage everyday activities using clinical pathways and processes: a transformation-to-be at the public hospital.

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Process-based approaches: from industry to hospitals

eighties

Supply-chain
Functional analysis
value-based management
Value analysis
VSM
Lean management

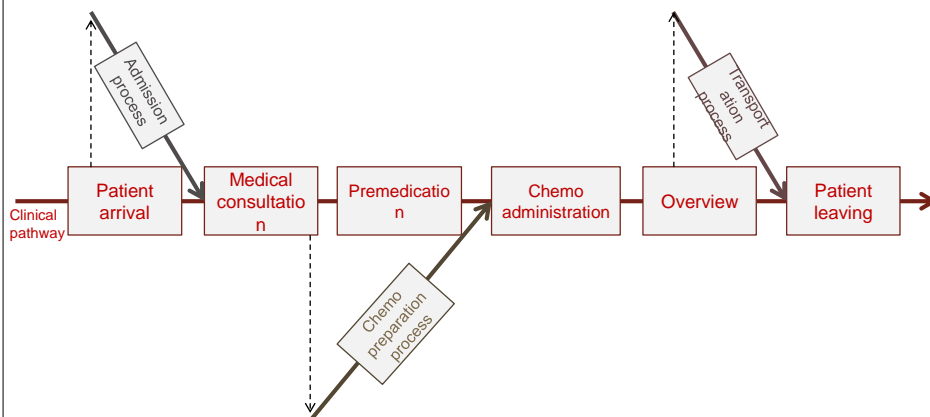


2016: First AP-HP (Paris) quality certification demanding process maps and risk analysis.

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The clinical pathway: the hospital atomic process



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Process mapping and process management

1 Map your process



2 Make it actually live

- ➔ Visual process management
- ➔ Value analysis
- ➔ Process-based document manager



What for?

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Aims of process management

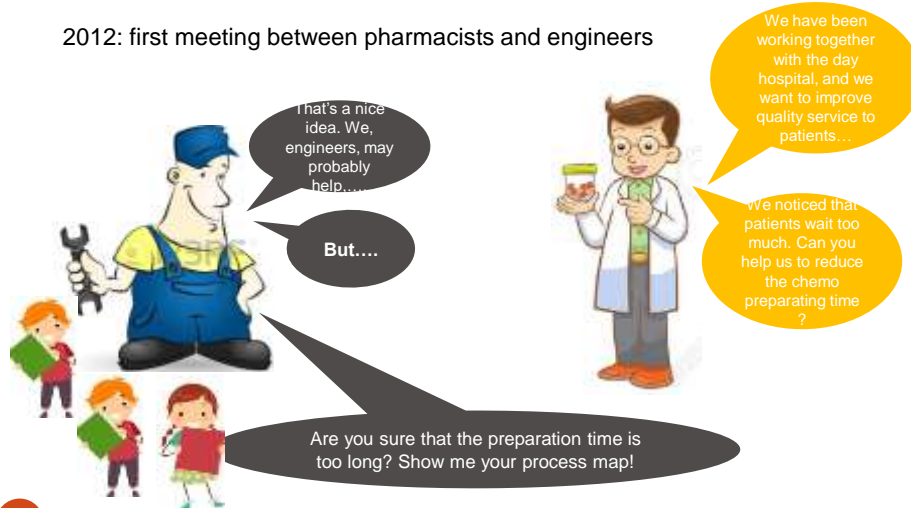
- Enhance collaboration in multi-disciplinary teams
- Monitoring of floor activities
- Planning and scheduling operations

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Illustration 1: the Day-H/pharmacy experience

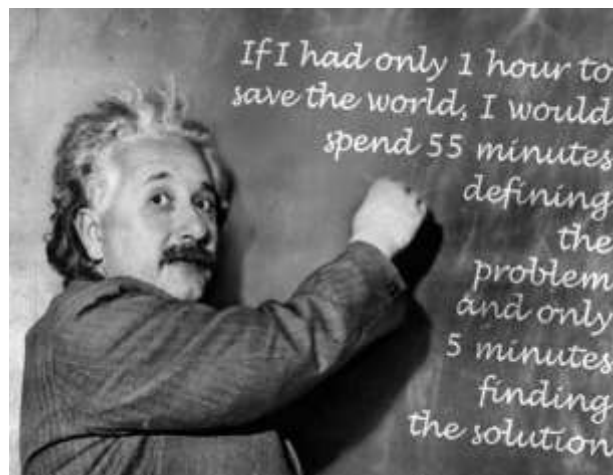
2012: first meeting between pharmacists and engineers



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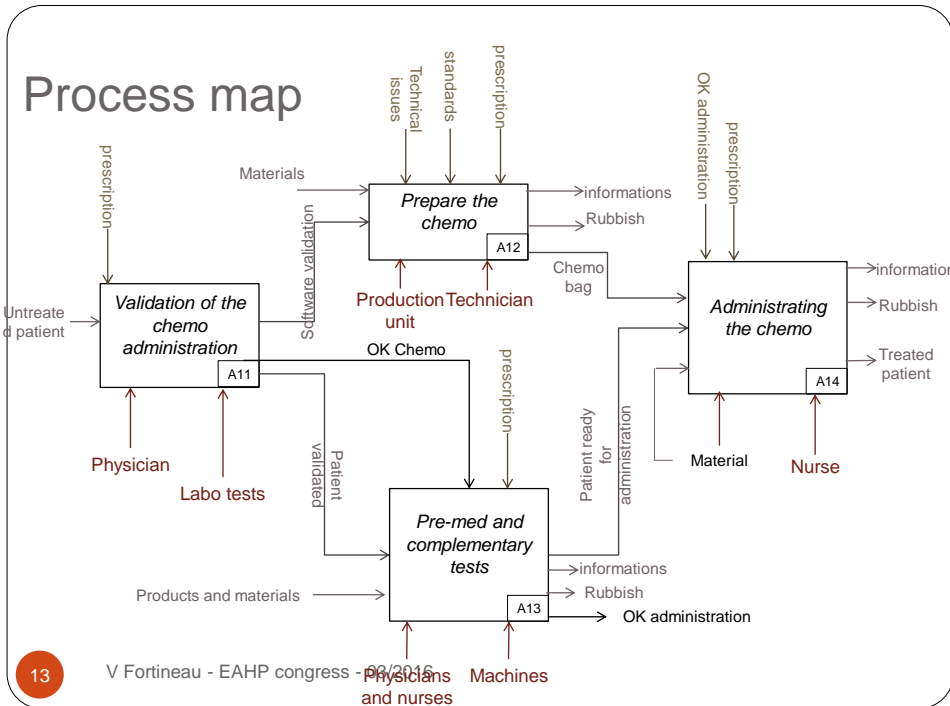
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Remember Einstein



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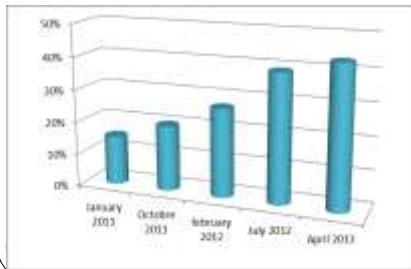
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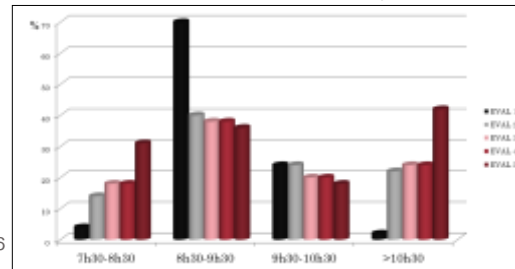
Decision

- Scheduling rules
 - Arrival time rules
 - To prepare in the administration order
- Shared performance management
 - Time of the first validation
 - Time of the last order
 - Time of the first prepared bags
 - ...

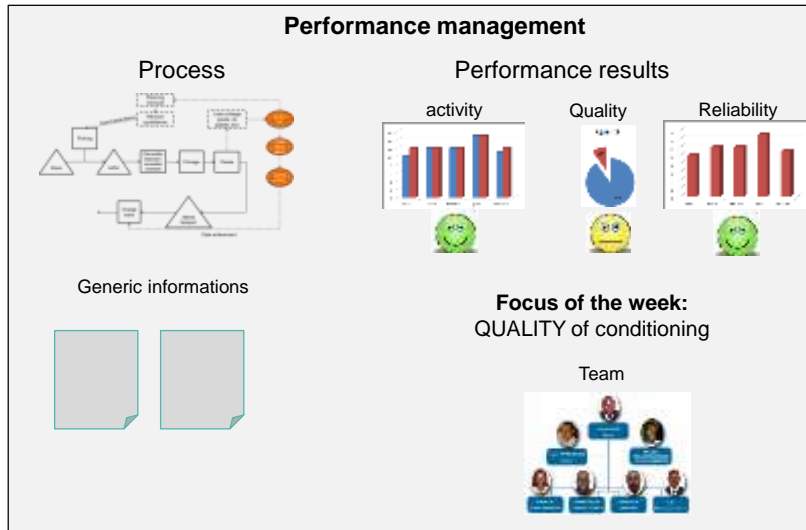
Anticipated OK Chemo



Patient arrival time at the day hospital



Visual performance management



Lessons learned

- The process view support better collaboration
- Appropriation by the end-users is a key factor of success
- Starting with simple actions and a limited scope helps end-users appropriation

Illustration 2: drug downstream logistic



Frequent issue: care services overstock drugs and face failures

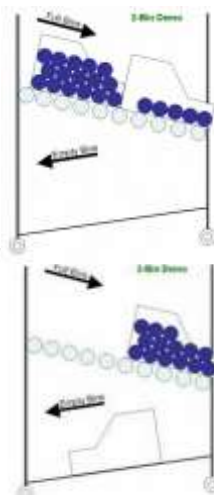
Frequent solution: inventory management system (based on a techn

Process-based approach

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Solution: Two-bin system

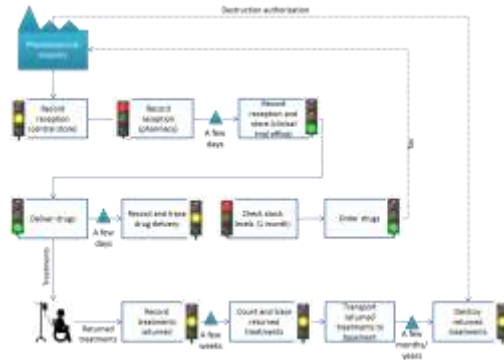


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The method VS the solution

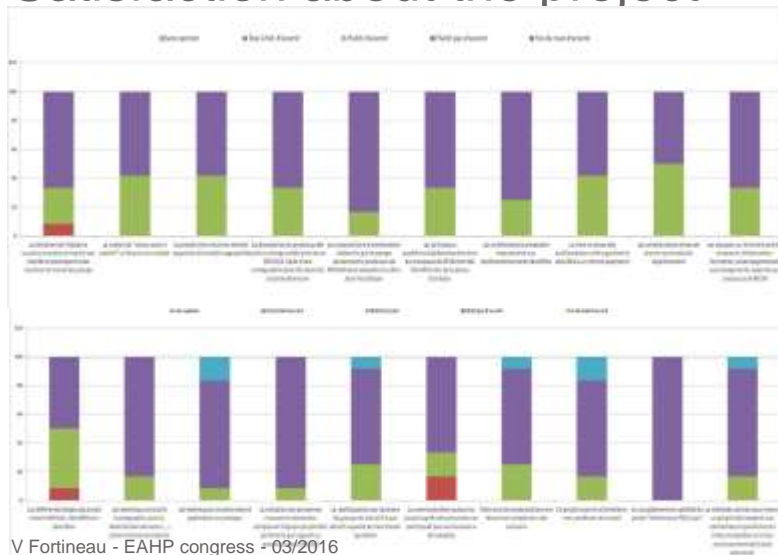
- 1 Value stream mapping
- 2 Waste analysis
- 3 Definition of solutions
- 4 Action plan



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Satisfaction about the project



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Designing the clinical pathways for planning and scheduling

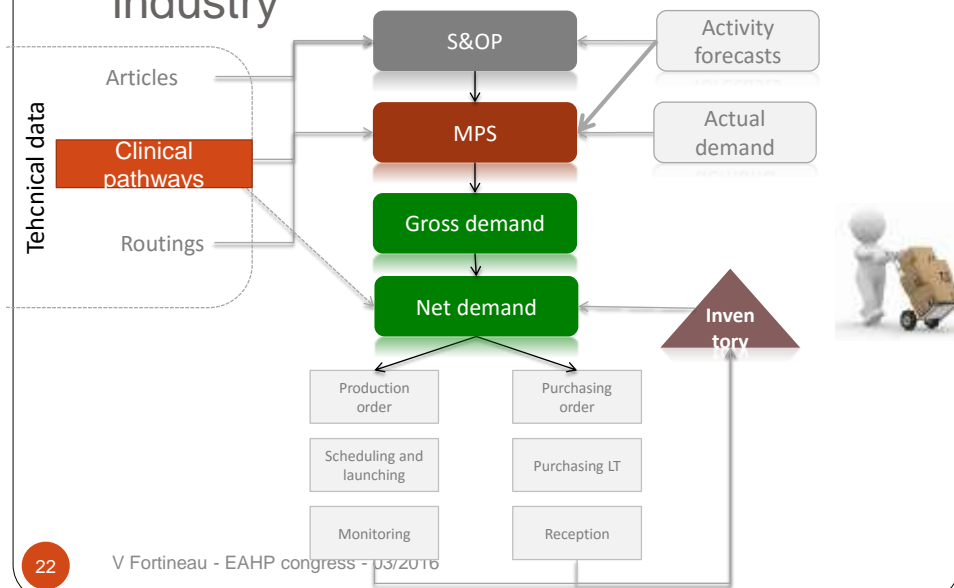
- Case study: designing and implementing an ambulatory clinic to gather the existing day-care pathways.
 - 24 different pathways
 - 900 m2 to design
 - Forecast : 55 to 60 patients/day

How would you proceed?

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Planning and scheduling in the industry



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Let's make it simple

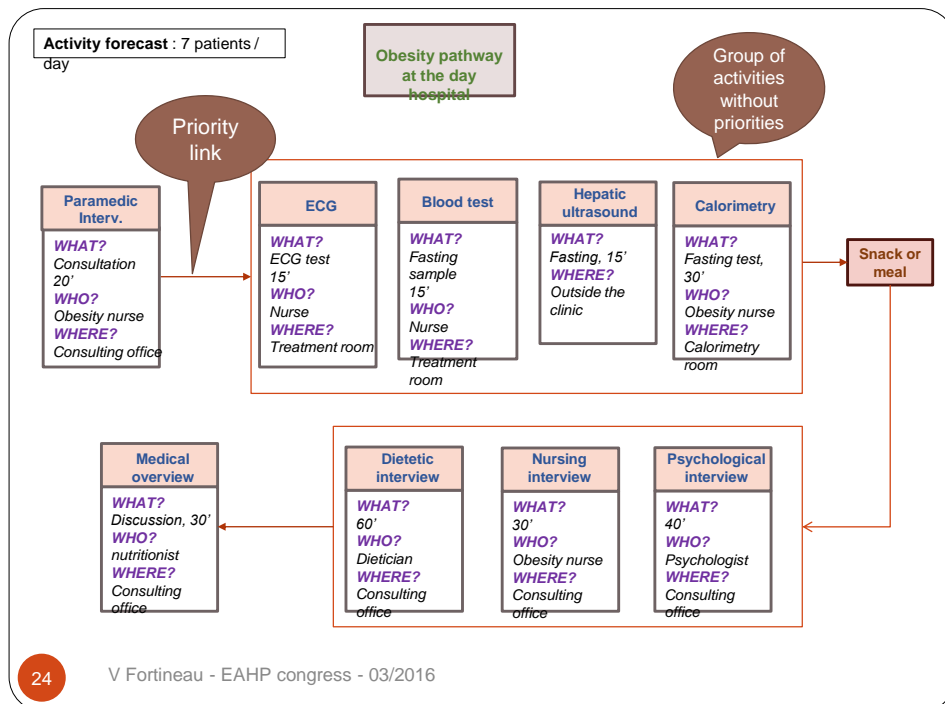
The day hospital ask the pharmacy to compound injectables ready to administer for two population of patients:

- patients suffering from Cancer and requiring chemos
- patients suffering from Crohn disease and requiring biotherapies

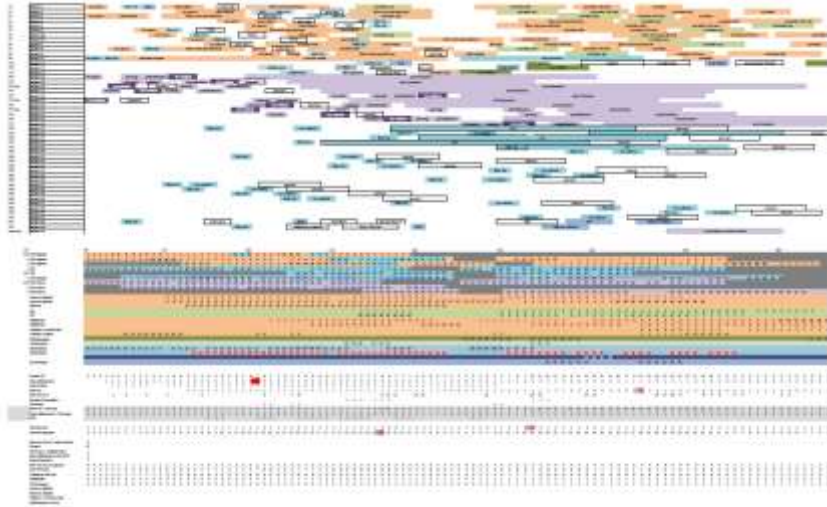
Chemos and biotherapies must be produced on separated units. The opening hours are 9:00 am to 2:30 pm. In average, per day, the day hospital treats 13 patients suffering from cancer (7 arrive at 9:00 am and 6 arrive at 10:00 am) and 5 suffering from Crohn disease (they arrive at 11:00 am). Usual closure time of the day hospital is 6:30 pm.

The production of chemo takes in average 40 minutes (10 minutes preparation materials, 20 minutes production, 10 minutes control and transportation) and the production of biotherapies take 1 hour (10 minutes preparation 40 minutes production, 10 minutes control and transportation). At the day hospital, all the patient spend 10 minutes when arriving with the secretary for administrative issues (the same when living, to schedule next appointment). Then they are divided into two groups : the patients suffering from cancer see an oncologist (20 minutes) to validate the chemo. During the chemo preparation, the nurses provide pre-med (duration = between 1,5 and 2 hours, nursing time = 30 min at the beginning), and then administrate the chemo (duration = between 2 and 2,5 hours, nursing time = 30 min at the beginning, and 20 min at the end). The patient suffering from Chronne disease are pre-med only when the biotherapy is ready to use (duration = 30 min, nursing time = 10 min at the beginning and 10 min at the end). Then, the administration requires 2 hours (nursing time = 20 min at the beginning and at the end).

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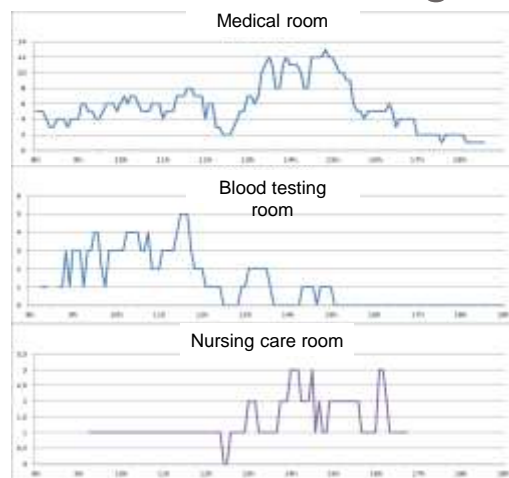
Planning and designing the clinic



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Result of scheduling



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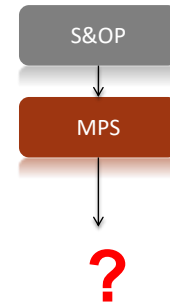
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Planning process at the clinic

Global planning, weeks in advance, on family of pathways
(obesity, long, short)

Intermediate planning, month by month, on each pathways,
including material constrains (maintenance)

Everyday monitoring of the real demand



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What if?

- The patient comes later
- The resource are limited / occupied
- The patient needs more care time
-
- The everyday-life must be monitored

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Monitoring the clinical pathways

- Making real-time decisions thanks to real-time information and based on anticipated and various optimisation criteria.
- Because of the growing complexity, it often requires a robust information system to support (for large-scale application)...
- ... but on delimited scope, monitoring only requires a whiteboard and a pen!

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Upcoming projects

- Implementing pyx4 software at the pharmacy to support a process-based document and skill management.
- Lean transformation of the logistic sector, using three keys methods: visual management, inventory management and process management.
- Proposing an execution methodology based on clinical pathways for the future ambulatory clinic.

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Thank you !
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