

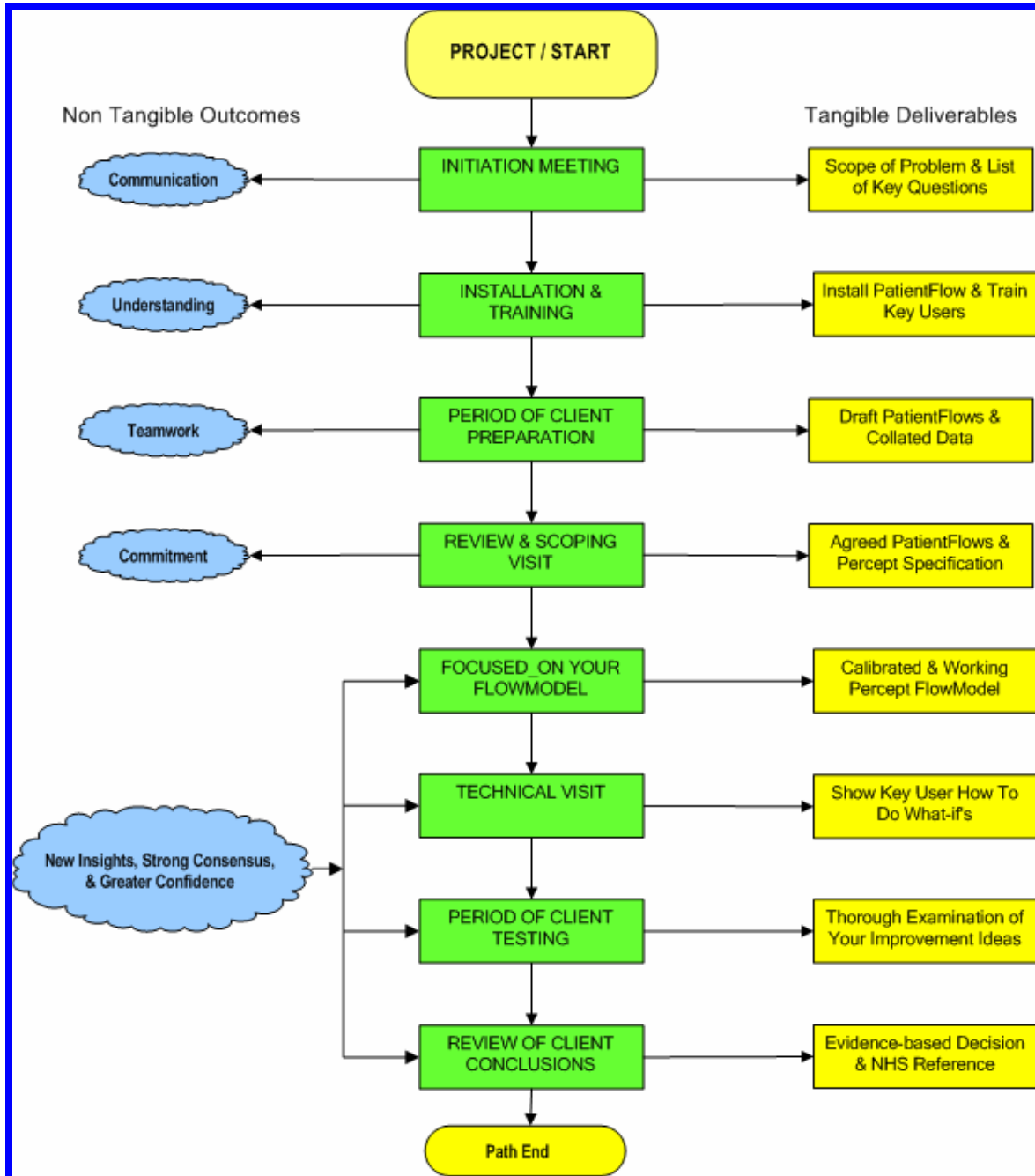
Summary of North Cumbria Orthopaedic Project

Introduction

The North Cumbria Acute Hospitals NHS Trust has two main sites, Whitehaven to the west and Carlisle to the east of the Lake District National Park. They tend to have a busier than normal Trauma service in the summer when tourists injure themselves whilst driving on the twisty roads or walking on the fells and mountains.

I mention this because a very important part of our work turned out to include producing evidence out of a simulation model that supported the Trust's belief that a proposed Independent Sector based strategy for diagnostics and treatment would prejudice this vital service and still not substantially improve delivery against the Trust's 18-Week Target.

Project Structure



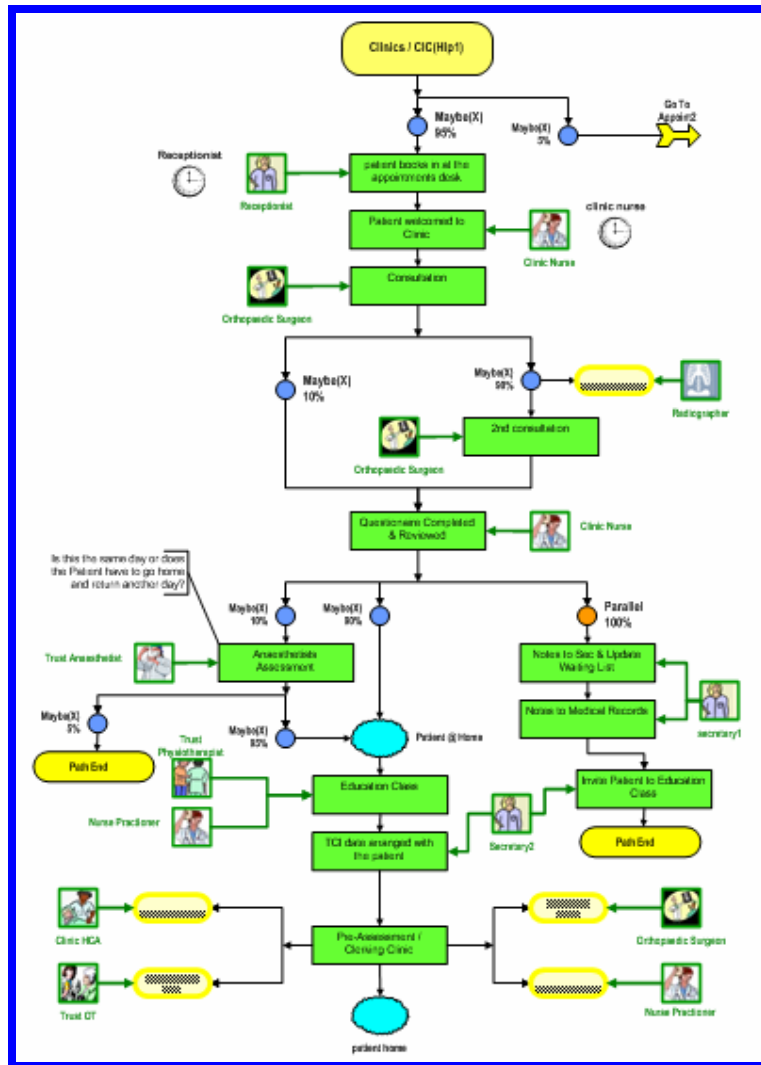
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PatientFlows

The Trust used our PatientFlow Planning software application to record the processes that their Elective Orthopaedic Patients experienced – this in itself identified inefficiencies straight away and enabled the staff to document desired improvements.

Importantly, the software has been designed with Health Care Professionals. It is easy to use and the User is encouraged to answer simple key questions like:

- Who does what?
- When?
- Where?
- How long does it take?
- What is their availability?
- How many people require this activity?
- Etc.



A Clinic Process for Hip Patients @ Cumberland Infirmary Carlisle

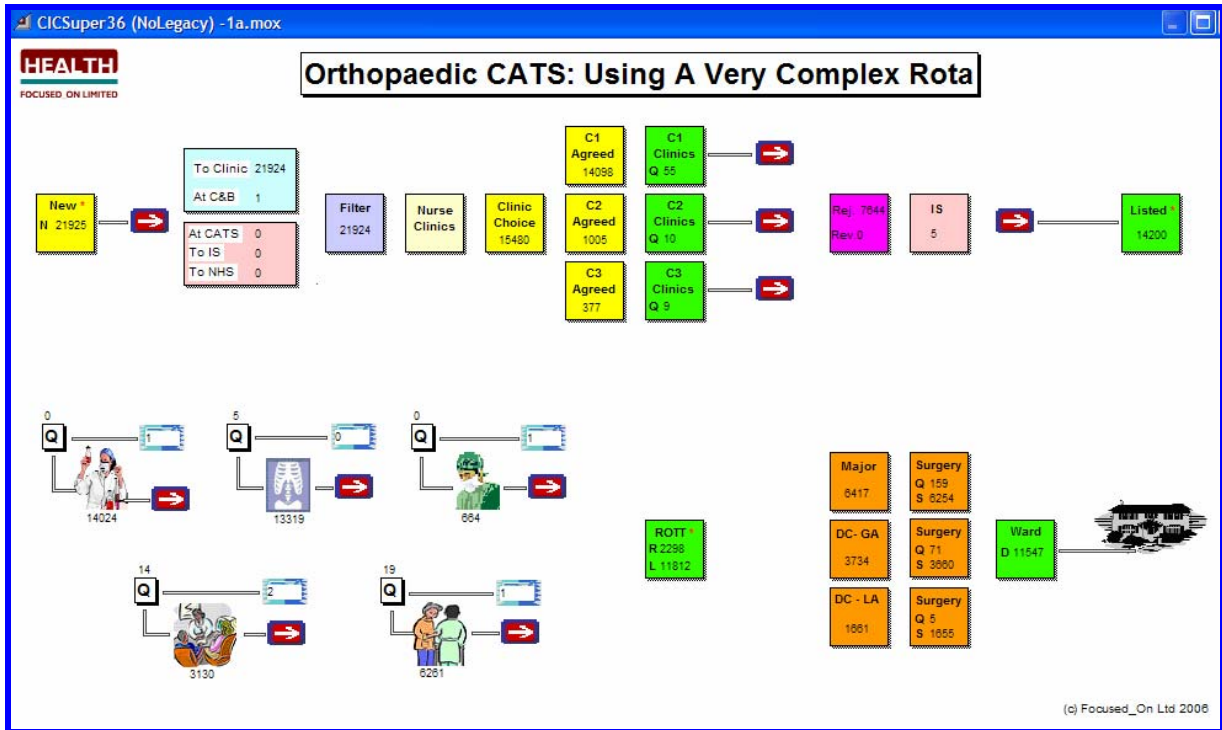
Their PatientFlows are much more than just a series of drawings. Each of the icons can store the User's notes and information, including hyper-links to agreed Protocols, other Reference documents or web sites.

Also, they can calibrate the duration of each of the Activities, typically by stating the Minimum, Maximum, and Most Likely values.

Clearly, there is a great deal of value generated by the staff in doing this work and it usually informs our design of their simulation FlowModel.

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FlowModel



'Percept' FlowModel of Orthopaedics @ Carlisle

This is a large, sophisticated FlowModel that allows the User to optimise care pathways of 5 Orthopaedic Cohorts (Hips; Knees; Upper Limb & Back; Soft Tissue; and Feet & Ankles) via a choice of 3 Clinic locations and a team of Specialist Surgeons, each of whom works within a complex Rota.

The Trust is able to test various scenarios in terms of resource availability, such as Specialist Nurse & Consultant Clinics, Radiology facilities, Lamina-flow Theatres, and Beds. It is also able to consider the potential impact on both Queues and resource utilisation if Patients are sign-posted to the Independent Sector for their CATS service (Capture-Assess-Treat-Support).

Reports

The WCH (West Cumberland) & CIC (Cumberland Infirmary) FlowModels export data and provide powerful User reports, including:

Summary: Patients Treated and 18-Week Target															
Target Length of Pa thway (Days)		Consultants in the Rota													TOTAL
> 126		Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7	Doc8	Doc9	Doc10	Doc11	Doc12	Doc13	13696
Actual "Hands-On" Time (hours)		1403	1266	1073	1687	1192	1542	1450	3783	293	0	0	0	0	13696
Clinics + Surgery															
Patients Treated		Hips	0	0	0	0	189	0	951	0	0	0	0	0	1140
		Knees	248	0	0	235	117	99	0	675	0	0	0	0	1378
		Upper Limb	0	1548	1596	0	0	0	0	1009	0	0	0	0	4143
		Soft Tissue	914	76	121	1169	596	650	707	0	0	0	0	0	4251
		Feet & Ankles	0	0	0	0	179	0	456	0	0	0	0	0	635
		TOTAL	1162	1624	1707	1428	882	946	1163	1626	1009	0	0	0	11547
Patient Pathways > Target		Hips	0	0	0	0	0	0	0	1	0	0	0	0	1
		Knees	4	0	0	4	5	1	0	0	0	0	0	0	14
		Upper Limb	0	4	4	0	0	0	0	0	0	0	0	0	8
		Soft Tissue	0	0	0	0	0	0	0	0	0	0	0	0	0
		Feet & Ankles	0	0	0	0	0	0	0	0	0	0	0	0	0
		TOTAL	4	4	4	4	5	1	0	1	0	0	0	0	23
Patients > Target		%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0.2%

Which Cohorts of Patient are Treated by which Consultant within 18-Weeks (demonstration data)

Summary of North Cumbria Orthopaedic Project

SUMMARY OF FIVE (5) SIMULATION RUNS						
	Run1	Run2	Run3	Run4	Run5	Average
All Operations	3419	3450	3474	3497	3465	3461
PathTimes that are >126 Days	733 21%	808 23%	823 24%	1169 33%	931 27%	893 26%
PbR Revenue Earned	£23,395,250	£23,821,750	£23,548,750	£24,048,000	£23,758,500	£23,714,450
Costs on Completed Treatments	£19,588,076	£19,957,549	£19,745,351	£20,181,727	£19,922,005	£19,878,942
Costs Lost on C&B Opt-Outs	£4,216	£15,272	£13,382	£34,370	£16,285	£16,705
Profit On Completed Treatments	£3,802,958	£3,848,929	£3,790,018	£3,831,903	£3,820,209	£3,818,803
Patients Stuck @ Home	196	281	215	251	253	239
Costs Invested in Patients (WIP)	£277,717	£417,858	£316,414	£381,997	£347,338	£348,265

FlowModel Run 5 times in succession, each Run being for for 3 Years (demonstration data)

The User can quickly gather evidence to support their preferred strategies:

	18 Beds	24 Beds	24 Beds & 1-Day Tests
Number of Operations	2,761	3,407	3,461
Path Times > 126 Days	2,259	1,750	893
	82%	51%	26%
PbR Revenue Earned	£18.7M	£23.2M	£23.7M
Costs of Complete Treatment	£(15.7)M	£(19.5)M	£(19.9)M
Costs Incurred on C&B Opt-Outs	£(0.3)M	£(0.0)M	£(0.0)M
Surplus	£2.7M	£3.7M	£3.8M
Patients 'Stuck' in System	716	294	266
Costs Invested in those Patients	£(1.0)M	£(0.3)M	£(0.3)M

(demonstration data)

They might then go on to consider the benefits of putting greater emphasis on Day Case treatments and the provision of '23-Hour' Beds to allow the Surgeons to do Lists into the evenings.

Some Actual 'Big Picture' Outcomes

1. Clinicians & Management share the same evidence-based platform.
2. Clinicians are fully engaged in identifying possible service improvement ideas and testing them via their simulation FlowModels.
3. Service providers can see the impact they are having upon their colleagues and Patients.
4. The Acute Trust is able to evidence the likely, adverse outcomes of a proposed CATS strategy and be statistically confident in their arguments.
5. The Acute Trust and the Primary Care Trust have an agreed tool that quantifies potential Local Delivery Plans.
6. Any agreed use of independent sector services and other providers can be planned and their impact focused in a way that benefits all Patients, has the support of all stakeholders, and delivers good value-for-money.