Control and management of HBV infection in the UK: current situation.

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The conclusions indicated here are my personal opinion and not necessarily those of my institution or the DH.

General Issues.

Topics:

- **Control of HAV:** Green Book chapter 17;

- **Control of HBV** (NICE Public Health: CHB and CHC case identification 2012;

NICE Clinical Guideline on Rx CHB 2013)

- **Control and Rx of CHC:** HCV Action Plan published 2006 (HPA yearly reports); NICE Guidelines on Rx in preparation).

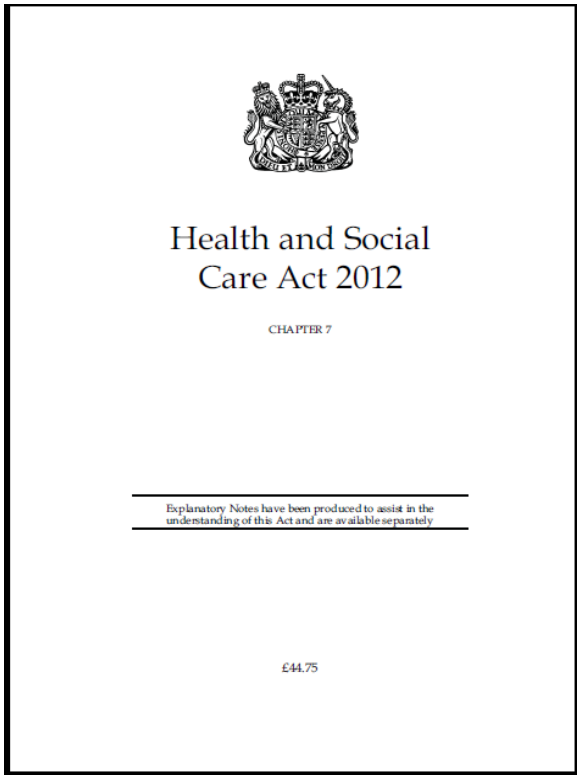
Note: Health care in UK is devolved to individual countries: England, Scotland, Wales & Northern Island are separate.

Policy background & strategic contex

New focus on quality and the birth of NICE Quality Standards

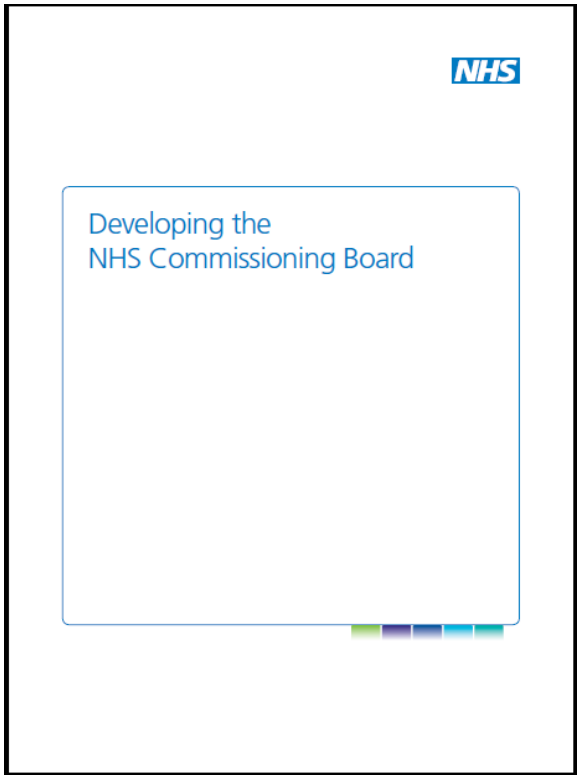
High Quality Care for All

Focus on quality retained and a strengthened role for NICE Quality Standards



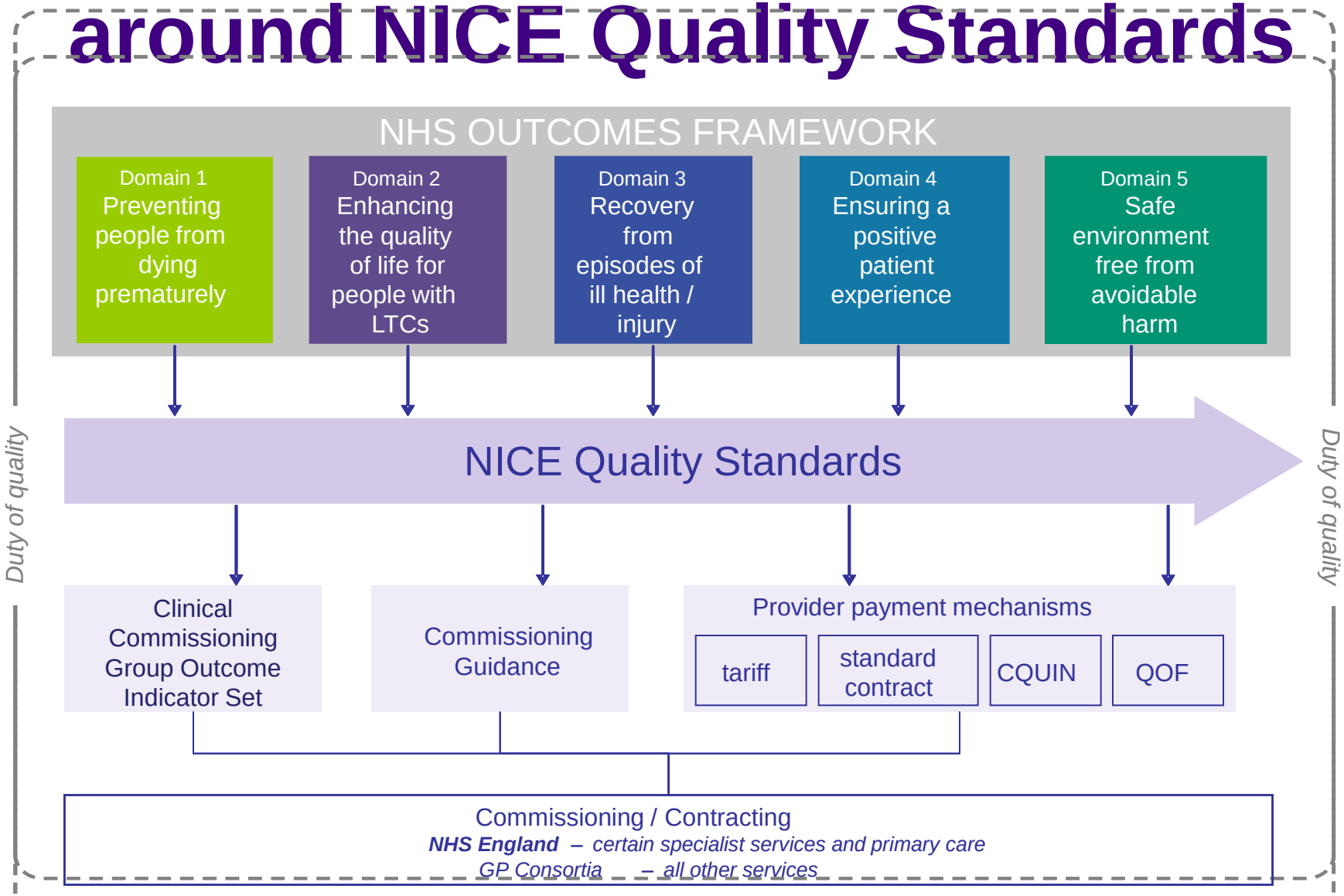
Health & Social Care Act 2012

NICE Quality Standards to underpin the new commissioning system



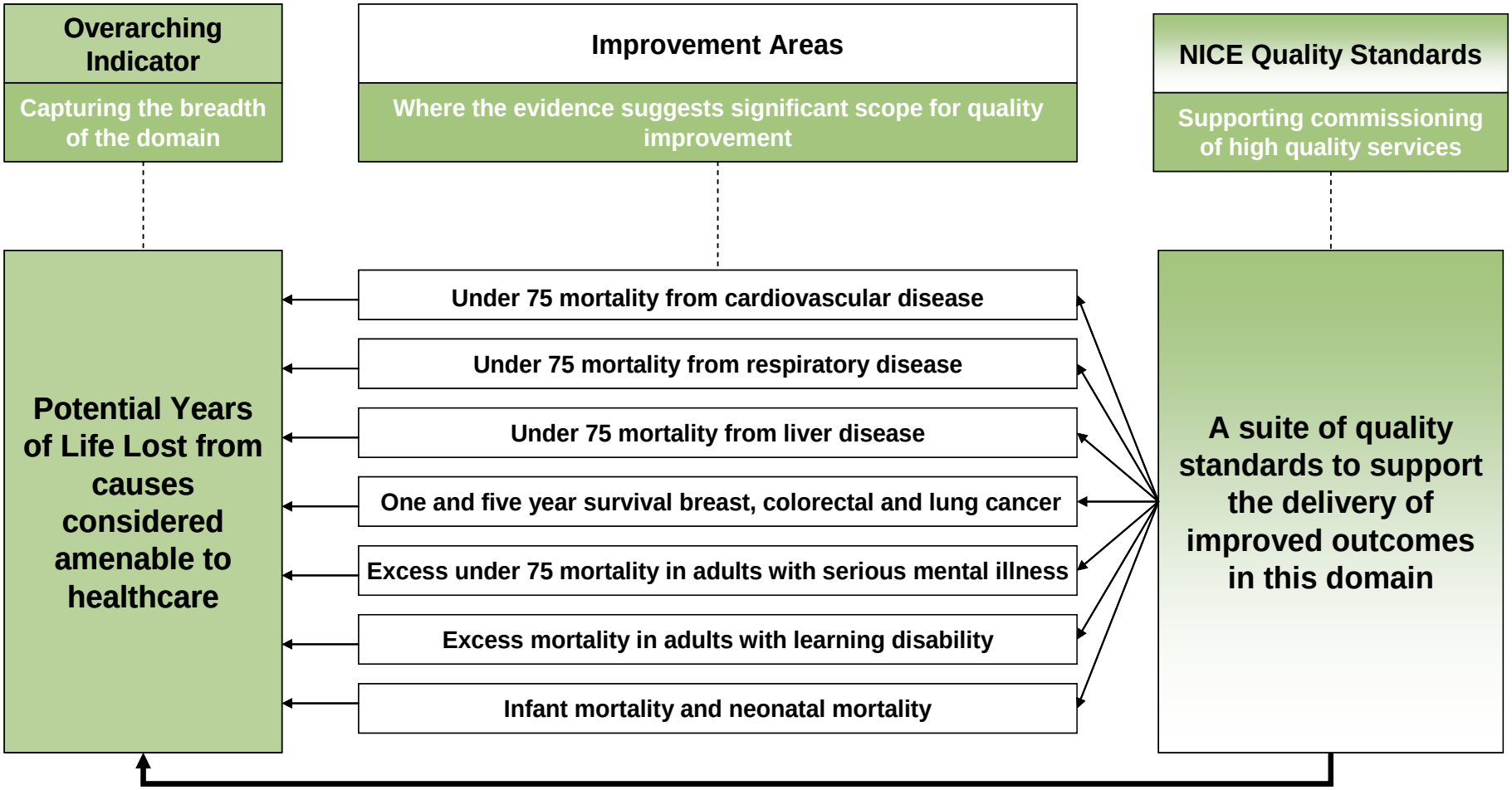
Developing NHS England.

Aligning the tools and levers of the new commissioning system around NICE Quality Standards



NICE Quality Standards- acting as the bridge between the processes of care and the outcomes of care

Domain 1: Preventing people from dying prematurely



Control of hepatitis B infection in UK.

Approaches:

- protect the population at risk of infection from the reservoir by vaccination .
- identify and remove the reservoir of infection by treating the existing chronically infected patients;

Control of hepatitis B infection in UK.

What can we achieve by:

- vaccination of the general population

and by:

- Identifying and treating the chronically infected patients.

Advantages of Vaccination and Case Identification Approaches.

- **Vaccination:**

 - prevents acute and stops progression to chronic infection.

 -no effect on established chronic infection.

- **CHB case identification:**

 - allows treatment reducing reservoir.

How many cases of CHB arise from acute infection acquired in UK and how many cases are 'imported' as CHB? (HPA data)

- *acute hepatitis B in indigenous population,* acquired in UK or abroad, progressing to CHB - 269 cases p.a from 1996-2000

  - 65 cases p.a. from 2002-2008 ;

- *chronic hepatitis B in 'incoming groups'* from high prevalence areas of the world - 6571 cases p.a from 1996 -2000.

(S.Hahne et al 2004; LJ.Brant et al 2012)

Epidemiological data on HBV infection (HPA): implications for control.

Acute hepatitis B in indigenous population, progressing to CHB can be controlled by vaccination - cases preventable 269 (1996-2000) to 65 (2002-2008) p.a;

Chronic hepatitis B in 'incoming groups' from high prevalence areas of the world can be controlled by testing and treating 'in comers' but not by UK vaccination - 6571 p.a.

(S.Hahne et al 2004; LJ.Brant et al 2012)

Control of hepatitis B in General Population.

Conclusions:

- **should include CHB case identification and treatment, where indicated;**

NICE Public Health Recommendations on CHB case identification 2012

- screening general population is **not** cost effective;
- screen high risk populations including first generation migrants from high prevalence (>2%) countries.

Treatment of chronic Hepatitis B NICE Clinical Guideline 2013.

Treat those with persistent viraemia >10^5 genomes/ml, abnormal ALT and evidence of progressive fibrosis.

HBe Ag +ve should have trial of PEG-IFN for 6 months and non-responders then maintained on long term viral suppressive therapy with nucleoside analogues (tenofovir or entecavir).

HBe Ag -ve should have trial of PEG-IFN for 6 months and non-responders then maintained on long term viral suppressive therapy with nucleoside analogues(entecavir or tenofovir).

Treatment with anti-virals prolongs survival.

Liaw et al 2004: N Engl J Med. 2004 Oct 7;351(15):1521-31

Continuous treatment with lamivudine (now use tenofovir or entecavir) delays clinical progression in patients with chronic hepatitis B and advanced fibrosis or cirrhosis by significantly reducing the incidence of hepatic decompensation and the risk of hepatocellular carcinoma.

Benefits to population of treating CHB cases.

Reduced infectivity:

- Treatment reduces HBV titre by >5 logs;
- Majority of treated CHB have viral levels $<10^{4.}$
- Patients with viraemia < $10^{4.5}$ are non-infectious in most circumstances

Control of hepatitis B in General Population.

- should include identification and treatment, where indicated, of imported cases of CHB;
- **improvement of existing selective vaccination programs in groups at high risk of hepatitis B,**

Risk Groups Currently Targeted (reviewed in 1997 & 2005).

- Babies born to CHB mothers;
- Parenteral drug users (prison program);
- People with multiple sex partners (STD program);
- Close family contacts of CHB cases;
- Families adopting CHB children;
- Haemophiliacs and CRF pts;
- Staff of mental sub-normality institutions;
- Travellers to high prevalence areas;
- HCWs (medical and nursing students program)

Control of transmission of hepatitis B in hospitals

Control of transmission of hepatitis B in hospitals: patient to health care worker (HCW).

- All medical students, nurses and new doctors are required to be vaccinated and checked for adequate response
- Non immune given hyperimmune globulin as post-exposure prophylaxis..

Control of transmission of hepatitis B in hospitals: health care worker (HCW) to patient:

All HCWs screened for HBV;

- HBs Ag positive stopped from going into EPP (exposure prone procedure) using specialties;
- HBs Ag negative vaccinated and checked for adequate response (100iu/ml).

Existing HBs Ag positive staff undertaking EPPs:

- checked for viraemia: if > 10^3 stopped from doing EPPs or given long term anti-viral Rx.

Is excluding HCW's with viraemia above 10^3 adequate?

Lowest level of viraemia reported to be associated with transmission is $10^{4.5}$ (N Engl J Med. 1997 Jan 16;336(3):178-84

No new transmissions reported in UK since this rule was introduced in 1999.

Incidence of HBV Infection is Declining (LJ.Brant et al 2012).

2002-2008: 1.3 cases /100,000 population (ie 650 p.a) of which 10% may become chronic.

Thus 65 CHB arise as a result of HBV infection acquired in UK

Control of hepatitis B in General Population.

Should Include:

- identification and treatment, where indicated, of imported cases of CHB **YES**;
- improvement of existing selective vaccination programs in groups at high risk of hepatitis B, including IV drug users (prisons program), people with multiple sexual partners & spouses of CHB **YES;**
- **introduction of neonatal or childhood vaccination program by integration into existing vaccination schedule????**

Universal neonatal or adolescent vaccination to prevent acute HBV in UK: not cost effective.

- Universal infant: £260k per QALY gained;
  Universal adolescent: £493k per QALY gained.
- **Neither cost effective** but universal neonatal would be if cost of vaccine and delivery < £4.09.

(MR.Siddiqui 2011: Vaccine 29: 466-475)

Control of hepatitis B in General Population.

Should include:

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- improvement of existing selective vaccination programs in groups at high risk of hepatitis B,

Should not include universal vaccination:

- Currently not cost effective

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BUT if cost < £4.09 per case, universal neonatal vaccination integrated into existing childhood program would be cost effective and could be introduced.