

Investigating the belief that contact between consultant teams could influence the clustering of relatively novel surgical procedures

A cross-sectional survey using hospital statistics data

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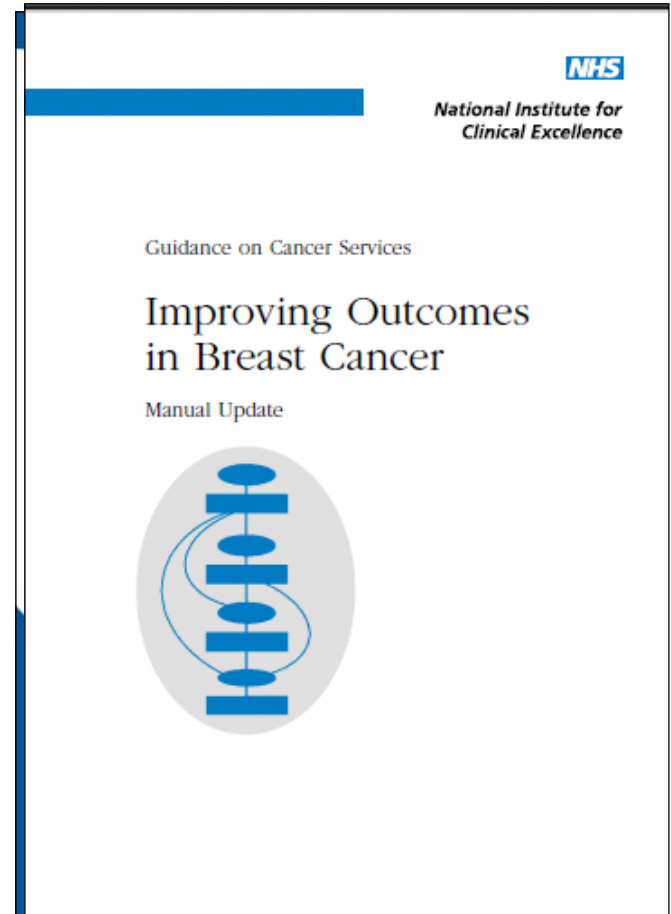
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Introduction

- NICE tracks the uptake of its guidance
- Often still wide variance in uptake at the clinician level, eg:
 - Breast conserving surgery (BCS) - 0% to 94% usage
 - Laparoscopic surgery for inguinal hernia repair – 0% to 92% usage
- How much variance is related to personal influence of colleagues?

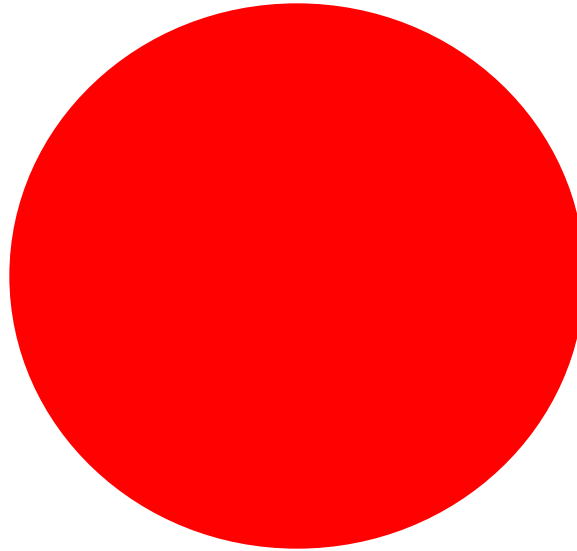


First analysis – Breast Conserving Surgery (BCS)

- Hospital Episode Statistics (HES) data for 2006/07 (UK hospital database)
- Women with breast cancer (ICD-10 codes C50, D05)
- Breast conserving surgery (BCS) – OPCS code B28
- Comparator: full mastectomy – OPCS code B27
- BCS appropriate in 70 to 80% of cases (most recently calculated NHS average = 59%)
- On average BCS has better psychosocial outcomes, and comparable survival curves – provided there is accompanying radiotherapy
- BCS rate calculated for each consultant team – from 0% of the time, to 100% of the time (0 to 1 for the purpose of the regression)

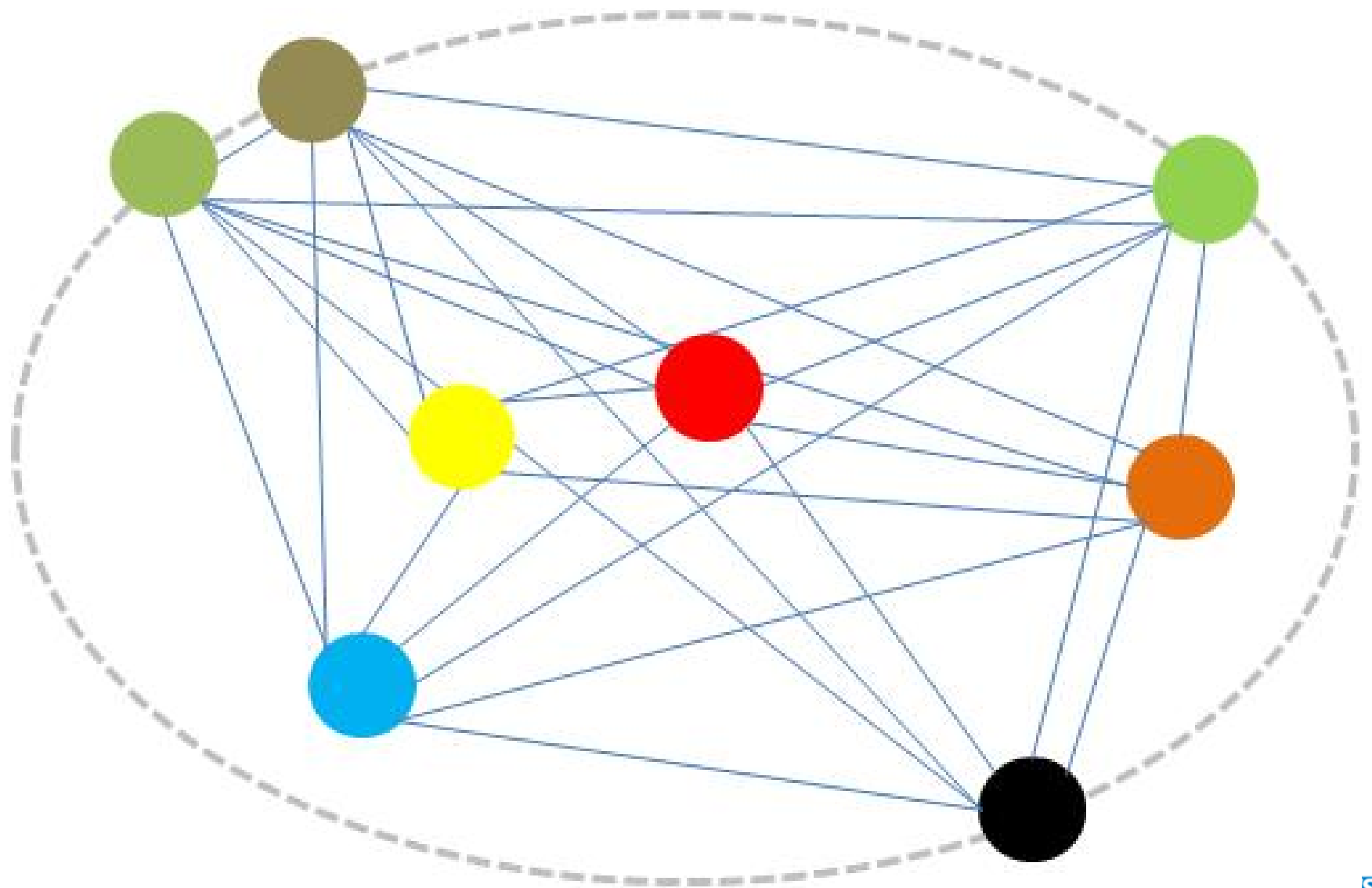
The unit of analysis

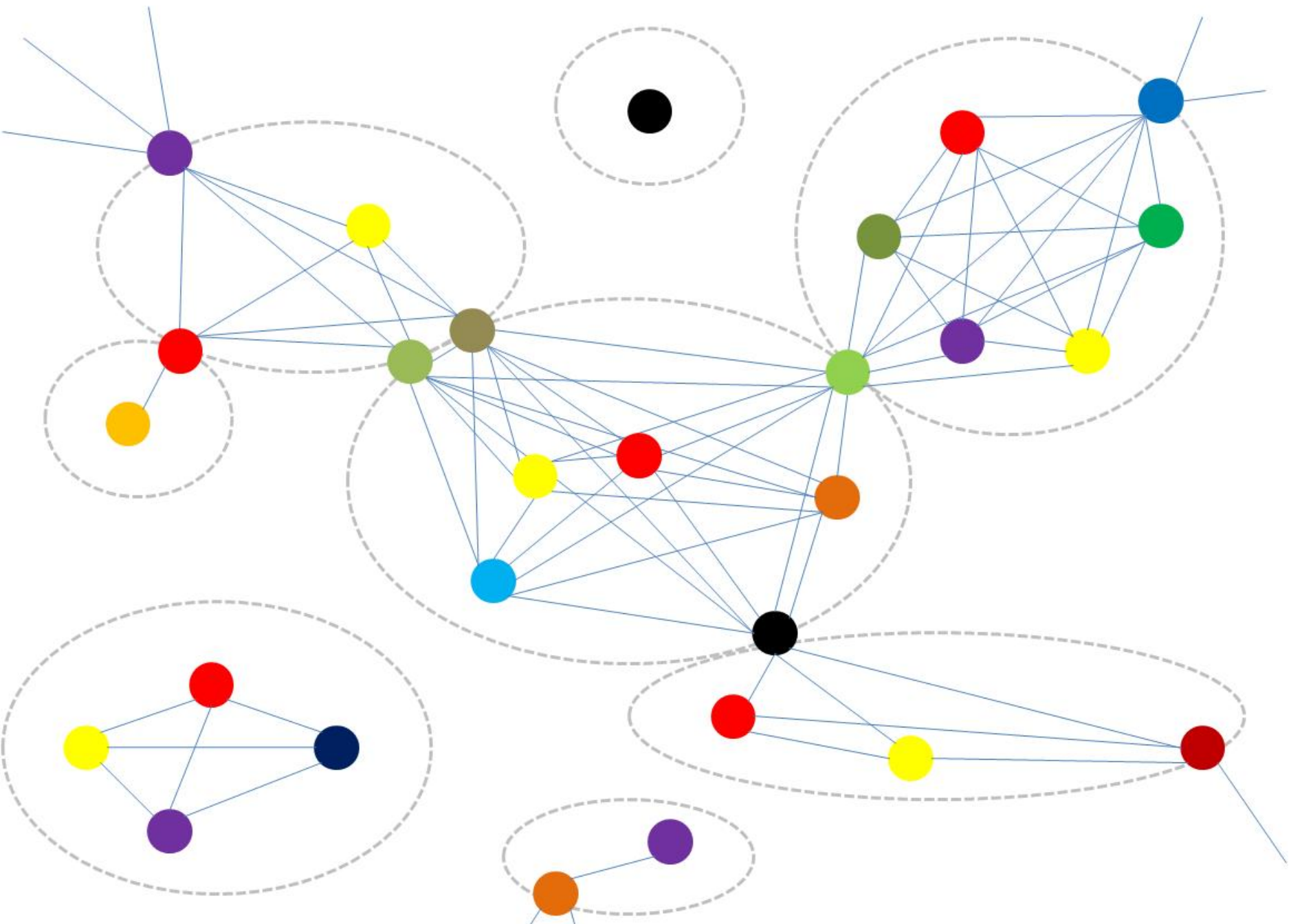
The unit of analysis was the consultant team (ie anyone operating under the supervision of that consultant)



Teams typically contain four to six clinicians

We know details of their location and activity, but the identity of the team is anonymous in the HES system





Other independent variables that explain BCS rates

- The dataset had to incorporate other variables:
 - Consultant team involvement in breast surgery
 - Local breast cancer service characteristics
 - Patient disease characteristics
 - Local demographic breakdowns
 - Control variables – dealing with their patient clinical histories
- Every team had a unique combination of these factors

Dataset

N = 420 consultant teams

Red column = the team's BCS rate (the dependent variable)

Blue column = average of their colleagues' BCS rate

Green columns = other independent determinants of BCS rate

Pseudonymised consultant team code	Percent BCS	Colleague average	Total surgery cases	Charlson Average of their patients	Radio-therapy Machines Weighted Average	Proportion of clinical screen age
Team 1	0.414	0.354	58	2.345	0.254	
Team 2	0.641	0.652	103	1.786	0.257	
Team 3	0.558	0.511	75	2.055	0.255	

Results for BCS

- After taking all other known influences into account, BCS rates were significantly associated by colleague team BCS rate (**standardised beta = 0.226, $p < .001$**)
- In other words:
 - if the colleague teams of a given team increased (or decreased) their BCS rate by **10%** on average, we would expect that their own rate would typically increase (or decrease) by around **3%**
 - Using just the other independent variables can explain **50.4%** of overall variation in the use of BCS (adding in colleague influence raises this to **55.0%**)

Second analysis - Laparoscopic surgery for inguinal hernia repair

- 1430 consultant teams did inguinal hernia repair operations (OPCS codes T20, T21) in 2006/07, but what determined their use of laparoscopic techniques?
- Comparator: non-laparoscopic techniques (other independent variables also in the analysis)
- An even higher effect: laparoscopic repair rates were significantly associated with their colleague teams' average rate (**b=0.337**, **p<.001**)
- In other words:
 - if the colleague teams of a given team increased (or decreased) their laparoscopic repair rate by **10%** on average, we would expect that their own rate would typically increase (or decrease) by around **6%**
 - Using just the other independent variables can explain **29.4%** of overall variation in the use of laparoscopic repair. Adding in colleague influence raises this to **40.6%**

Conclusions

- Colleague influences appear to have a sizable effect on innovation usage
- Implications for HTA organizations:
 - Should HTA organisations focus most of their dissemination efforts at individual grass-roots level?
 - “Social marketing” approaches to dissemination?
 - “Viral marketing” of new procedures – clips on YouTube?!

Possible avenues for future investigation

- Explore the possibility that other factors (e.g. nature and size of the hospital) could also be influencing clustering of innovation
- Try to detect the effects of individual clinician-to-clinician knowledge transfer over time
- Look for evidence of particularly influential consultant teams, or in other words, people to target to help ensure speedy guidance uptake