## INTRODUCTION:

Clinical background: Until recently, populations living in remote areas did not have access to specialist care and quality diagnostic services and thus depended on the low response capacity of their local health system. Subsequently, there were equity issues between urban and rural populations. Therefore it was considered telediagnosis applications should be directed towards developing better equity in the provision of services in remote locations without access to specialists. This study has evaluated the results of a new telemedicine system in remote public hospitals in Paraguay, in order to show how the response capacity of the local integrated health service delivery networks has been improved by providing access to tertiary level diagnostic services by specialists. Objective: This study aims to evaluate the utility of telemedicine as a tool for developing better equity in the provision of services in remote locations.

## METHODS:

This was a descriptive study, where the results of using telemedicine for diagnosis in remote public hospitals were evaluated as a tool to improve access to diagnostic services countrywide between 2014–2017. For these purposes, type and frequency of pathology diagnosed was determined.

## RESULTS:

A total of 311,562 telediagnoses were performed in fifty-seven hospitals. The 191,435 electrocardiogram diagnosis performed in the fifty-five hospitals were mainly normal (62.1%), unspecified arrhythmias (12.5%), and sinus bradycardia (10.4%). Also 115,924 teletomography tests were performed in twelve hospitals, where 54.4 percent corresponded to head as a consequence of accidents (motorcycles) and cerebrovascular diseases, 13.8 percent to chest, and the rest the other anatomical regions. Regarding the 4,184 electroencephalogram tests performed, antecedents of seizure (54.3%), evolutionary controls (14.0%), and headache (11.5%), were mainly diagnosed. The nineteen ultrasound studies corresponded to prenatal controls.

## CONCLUSIONS:

Despite the results of the telediagnosis implemented in the public health to develop better equity in the provision of services in remote locations, a widespread use-assessment should be analyzed before this tool is adopted.

# PP06 HER2 Evaluation By CISH And SISH In Breast Cancer: A Meta-Analysis


## AUTHORS:

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## INTRODUCTION:

Molecular techniques play a critical role in identifying breast cancer patients with overexpressed human epidermal growth factor receptor-2 (HER2). New bright field techniques such as chromogenic in-situ hybridization (CISH) and silver in-situ hybridization (SISH) have emerged to overcome some of the challenges associated with the reference standard, fluorescence in-situ hybridization (FISH). We conducted a literature review and synthesis to characterize the accuracy of HER2 tests, and inform decisions about test selection.

## METHODS:

We searched MEDLINE and EMBASE databases using these eligibility criteria: studies evaluating invasive breast cancer samples which examined agreement between CISH or SISH, and FISH, and reported sensitivity, specificity, or concordance. We performed a bivariate meta-analysis of sensitivity and specificity using a generalized linear mixed model in Stata. We used likelihood ratio tests from meta-regression to compare accuracy between HER2 tests.

## RESULTS:

The search identified 4,475 articles, of which thirty-one were included. A total of thirteen studies (43%) evaluated dual-color SISH, twelve single-color CISH, and six dual-color CISH. The summary estimates for sensitivity and specificity were, respectively, 0.97 (95%CI 0.83–0.99) and 0.99 (95%CI 0.96–1.00) for single-color CISH, 0.98 (95%CI 0.92–0.99) and 0.98 (95%CI 0.91–0.99) for dual-color CISH; 0.92 (95%CI 0.86–0.95), and 0.96 (95%CI 0.91–0.98) for SISH. Significantly higher specificity was reported for single-color CISH than SISH (chi-square 4.12; $p = 0.04$), while dual-CISH had higher sensitivity than SISH (chi-square: 4.63; $p = 0.03$). These differences were not maintained when studies with cohorts enriched with equivocal samples were excluded.

## CONCLUSIONS:

The agreement between new bright field tests (SISH and CISH) and FISH is high (>92 percent). Indirect



https://doi.org/10.1017/S0266462318001836 Published online by Cambridge University Press

comparison of HER2 tests indicated that overall CISH performance exceeds that of SISH. However, low agreement between SISH and FISH in equivocal cases affects these comparative estimates. The pooled estimates from this meta-analysis can help inform future HER2 test selection decisions.

## PP08 Health Technology Assessment Of Autologous Chondrocyte Implantation


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### INTRODUCTION:

Microfracture (MF) has been the main intervention in symptomatic articular cartilage knee defects. Autologous chondrocyte implantation (ACI) has looked promising, but was not recommended by the UK National Institute for Health and Care Excellence (NICE) in 2015 due to the short-term follow-up data from trials.

### METHODS:

Most long-term data comes from observational studies. We provided new unpublished analyses to NICE based on survival data of these studies, with appropriate caveats. They included: a large ACI study by Nawaz with useful subgroup data by osteoarthritis Kellgren-Lawrence stage and previous repair attempts; a very large MF study by Layton, and a small RCT by Knutsen indicating MF was as 'good' as ACI. A Markov model explored the cost-effectiveness of ACI vs. MF. Different scenarios were explored: ACI or MF as a first procedure, followed by ACI or MF in those needing a second repair. A NHS England perspective was adopted. Health outcomes were expressed as quality-adjusted life-years (QALYs).

### RESULTS:

The revised base-case analysis, used a list price of £16,000 (EUR 17,380 in 2013 prices) for cells, used ACI failure data from Nawaz with no previous procedures for ACI, and pooled MF failure data from two studies-Saris and Knutsen. ACI was more expensive but provided more QALYs. The incremental cost-effectiveness ratio comparing ACI then MF with MF then ACI was £8,000 (EUR 8,690) per QALY. Various sensitivity analyses were conducted assuming a threshold of £20,000 (EUR 21,730) per QALY: previous repair attempts reduced success of ACI (£22,000 (EUR 23,900) per QALY); reducing cell costs, ACI improved its cost-effectiveness; and limiting intervention to patients with higher Kellgren-Lawrence score did not appear cost-effectiveness.

### CONCLUSIONS:

The final NICE guidance published in October 2017 approved the use of ACI for patients who had no previous knee repairs, for people with minimal osteoarthritic damage to the knee, and for people with articular defects of over $2cm^2$.

## PP11 Would A Highly Specialized Technology Be Approved In England Under The New NICE Guidance?


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### INTRODUCTION:

In April 2017, the National Institute for Health and Care Excellence (NICE) updated its guidance for highly specialized technology (HST) appraisals, whereby it would automatically fund technologies for very rare diseases that fall below a threshold of an incremental cost-effectiveness ratio (ICER) of GBP 100,000 (USD 133,000) per quality-adjusted life year (QALY). In addition, NICE proposed to introduce a 'QALY modifier', weighting QALYs gained by the size of gain, which will advantage treatments that offer greater QALY gains.

### METHODS:

We reviewed all technologies reviewed through the NICE HST process until November 2017 and assessed whether additional QALYs may be awarded, and subsequently result in ICERs below the new NICE threshold.

### RESULTS:

Six products (eculizumab, elosulfase alfa, ataluren, migalistat, eliglustat, and asfotase alfa) have been through HST process. Within the appraisal documents, most analyses were cost consequence analyses with no ICERs reported. The estimated cost per patient per year



https://doi.org/10.1017/S0266462318001836 Published online by Cambridge University Press