Modelling Covid 19

Estimation errors discussion paper 29 Jan 21

For discussion only – needs verification

(DetoTime)

Estimation errors are magnified in modelling by cautious assumptions Example - PPE Reasonable worst-Demand signal for Delivery and quality PPE Usage case scenario assumptions by PPE PPE in use by PPE assumptions projected **Buying Cell Buying Cell** projected by SAGE by DHSC Modelling Projection guessing at Buying behavior based Theoretical model

projecting PPE use in

different case settings

Consensus model drawn from 4 modelling groups

[DateTime]

Buying behavior based on priorities set by modelling and short-term inventory projections ²

PPE team applied uncertainty figures to the forecasts

- These were to allow for uncertainty of delivery from unproven counterparties, potential quality issues and delays in shipment
- Figures differed by channel most certain existing NHS suppliers, least certain new Chinese sources through intermediaries

Work Team	PO Quantity Materialisation	Quality Pass Rate	Overall Confidence level	Delivery Delay (Days)
SCCL	95%	100%	95%	7
SCCL expansion	95%	95%	90%	7
Trusts	95%	95%	90%	
China Buy	95%	80%	76%	7 (+20-40 for EXW)
RoW Buy	95%	80%	76%	7 (+20-40 for EXW)
New Opportunities	95%	80%	76%	7 (+20-40 for EXW)
UK Make	95%	80%	76%	14

[DateTime] Figures from 1 Jun 20

The actual Demand signal projected 90 days ahead - while we were buying 150 days ahead Revised scenario PPE position (after all additional opportunities) additional opportunities vs. current scenario Modelled Planning signal to current COVID² Revised Social Care interactions³ Resumption of NHS services⁴ Revised scenario⁵ Buying signal 13 May 20 Aprons 1.73 BN 323m sumplus 1.71 BN - 287m - 189m + 490m 90,000 Body Bags Clinical Waste Bags + 18m 28m + 45m - 27m + 90m Eye Protectors 356m - 45m + 135m 86m surplus FFP3 Respirator - 15m + 27m Face Mask + 56m 439m - 38m + 94m Gloves 3.72 BN - 379m 3.55 BN - 598m + 810m 267m surplus 1 + 14m 33m 47m [DateTime Gowns + 29m -15m

Issues – 'Whiplash' effect propagates through to buying behaviour

- Uncertainties in estimates multiply up to give a much bigger error bar for operational activity
- Duration of confidence of estimate may be much shorter than lead times of activity
- Limited ability to feed back 'actual' data and correct forecast dynamically

(Determine)