

INDICATIONS FOR DECLINE IN HCV AND HIV INCIDENCE AMONG PEOPLE WHO INJECT DRUGS IN ATHENS, GREECE

Anastasios Fotiou • Greek Reitox focal point at the Athens University Mental Health Research Institute

Collaboratively with Eleftheria Kanavou & Argyro Andaraki



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Session 4. Directions for the development of the DRID indicator
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Drug situation in Greece

- **2.4 per 1000 people** (~17000) aged 18-64 **use opioids** — ~1/3 current injectors and **more than half live in Athens**
- **~5 000 people** enter treatment / OST) annually — ~3/5 have entered treatment before
- **Opioids** responsible for ~**3/4** of treatment entries
- The majority of entries in **drug-free settings** — long and stagnant waiting list for entry in OST in Athens
- **>60% OST coverage nationwide**, just above 50% in Athens
- **~20%** of current injectors report also **current sharing of syringes**
- **~109 syringes per current injector a year** (2015), scant in other cities
- **~63% HCV antibody prevalence** among entries in Athens, higher in OST
- **~14% HIV prevalence** among treatment entrants in Athens, higher among active users (~17%, 2013 data)



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Sharp increases in the yearly number of HIV notifications associated with IDU in 2011 and 2012 — almost all reported in Athens

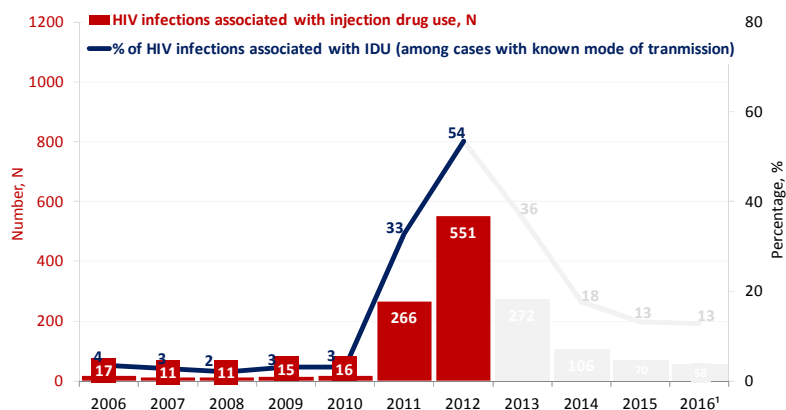


Fig. Trends in the number and proportion of HIV notifications associated with injection drug use in Greece

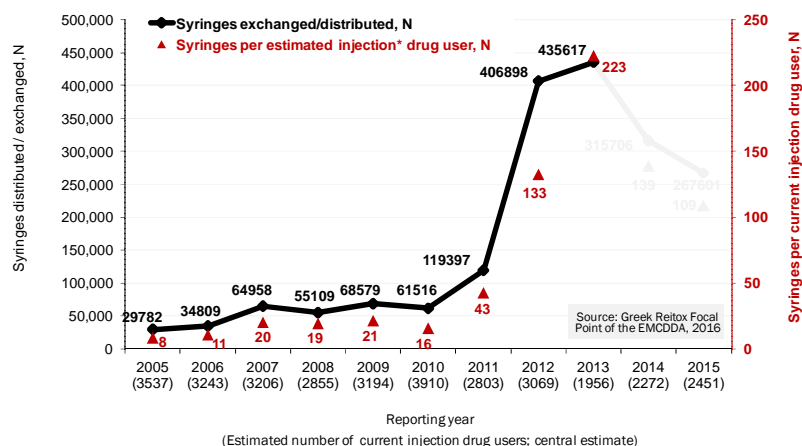
Source: Hellenic Centre of Disease Control & Prevention

Notes .¹ January-October 2016



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Key response #1: Scaling up of the syringe programs in Athens following the 2011 outbreak



* Past 30 days injection

Fig. Trends in the number of syringes distributed and the number of syringes per estimated current PWID in Athens



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Key response #2: Increase availability of OST coverage

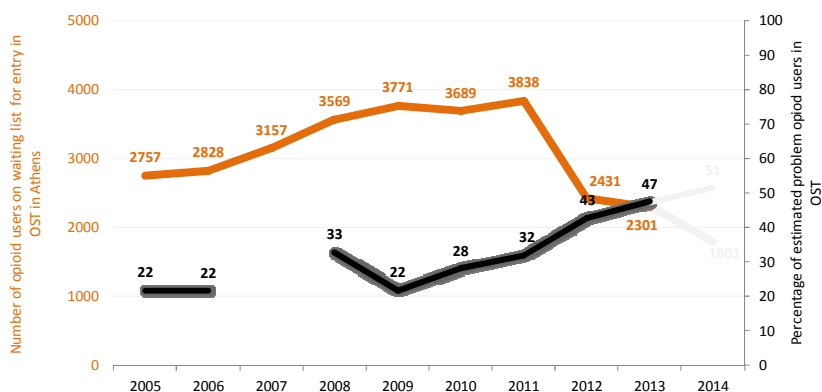


Fig. Trends in the number of opioid users on the waiting list to enter OST and percent of estimated problem opioid users in OST in Athens (coverage)

Source: Greek Reitox Focal Point of the EMCDDA



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Key response #3: Seek, test, link to care, and prevent further harm – The ARISTOTLE program

- Aim** Seek, test, alert, link to care (as a response to the HIV outbreak)
- Site** Athens (metropolitan area)
- Period** Aug 2012-Dec 2013 (18 months)
- Setting** Community
- Population** PWID in the past 12 months, ≥ 18 years of age
- Method** Respondent driven sample, RDS; 5 rounds; incentives
- Sample** N=3,320 unique participants (≈ 36 yo); 54% in ≥ 1 rounds
- Coverage** 71-100% (based on HRDU estimates for current injectors)
- Data collection** Blood sample and CAPI

Source Hatzakis et al *Addiction*, 2015

Run by Athens University Medical School, in collaboration with the Greek Organisation Against Drugs (OST), the Hellenic Centre for Disease Control & Prevention, and NGOs



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ARISTOTLE reported significant changes towards less risky behaviours from round 1 to round 5

- Decrease in daily injecting, from 45% to 19%
- Decrease in current sharing of syringes, from 37% to 26%
- Entry in OST doubled, from 12% to 28%
- HIV test uptake increased from 50% to 87%
- % of undiagnosed HIV-positives declined from 84% to 15%
- 48% of previously unlinked seropositives visited an infectious diseases unit, and one-fourth (25%) initiated ART after their participation and by the end of round 5



Source: Hatzakis et al *Addiction* 2015; Sypsa et al *J Inf Dis* 2017

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ARISTOTLE enriched data on HIV prevalence by including PWID from wider networks in Athens

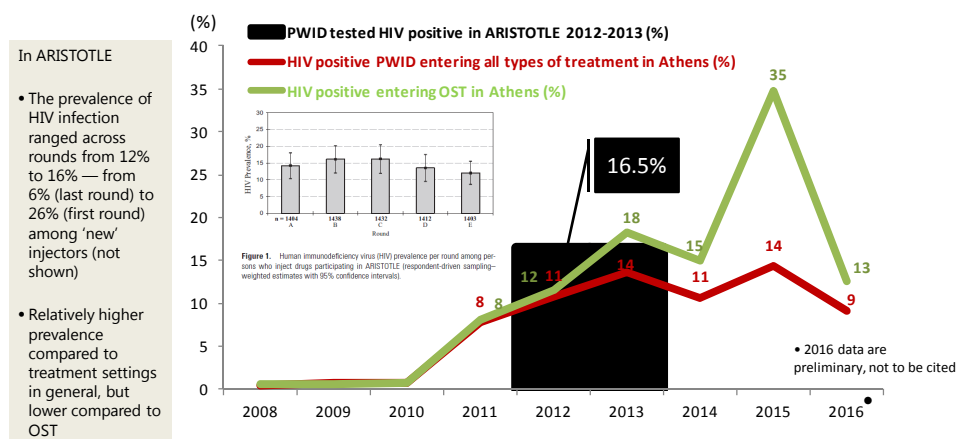


Fig. Prevalence of HIV infection among PWID entering (a) any type of drug-related services in Athens, (b) OST and (c) ARISTOTLE program

Source: Greek Reitox Focal Point of the EMCDDA ; Hatzakis et al *Addiction* 2015; Sypsa et al *J Inf Dis* 2017



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ARISTOTLE data allowed the direct measurement of HIV incidence among PWID participating in the program

Infectious disease:	HIV
Sample / data:	PWID in the past 12 months Participants of the 5-round RDS of the ARISTOTLE program N = 1521 with >1 presentation in the program
Period:	2012-2013
Type of measurement:	Direct, longitudinal follow up of PWID who were initially negatives and seroconverted during the program
Seroconversion time:	Mid-point between last negative and first positive test
Risk years:	1004
# seroconversions:	45
Incidence rate:	4.5 infections per 100 person years

Source: Sypsa et al 2017 (JID)



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ARISTOTLE data suggested a 78% reduction in incident HIV infections between the start and end of the program (18 months)

Table 2. HIV Incidence Rate During ARISTOTLE

Dates	Seroconversions, No.	Time at Risk, y	Incidence/100 PY (95% CI) ^a
August–December 2012	14	180	7.76 (4.60–13.11)
December 2012 to April 2013	18	306	5.88 (3.70–9.33)
April–August 2013	10	344	2.91 (1.57–5.41)
August–December 2013	3	175	1.71 (.55–5.31)

Abbreviations: CI, confidence interval; HIV, human immunodeficiency virus; PY, person-years.

^aTest for trend $P = .001$.

Source: ARISTOTLE; Sypsa et al *J Inf Dis.*, 2017



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Over-representation of HIV positives in OST entries coupled with reduced sample sizes in the recent years threaten data reliability of HIV prevalence in this population

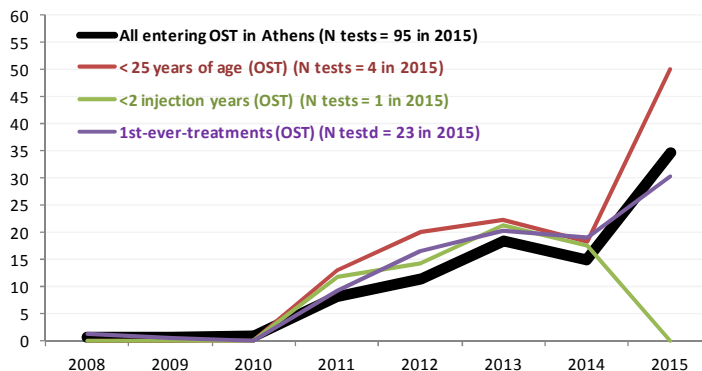


Fig. Prevalence of HIV infection among PWID entering OST in Athens



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Rely on HIV notifications as proxy for trends in incident HIV infection among PWID in Athens

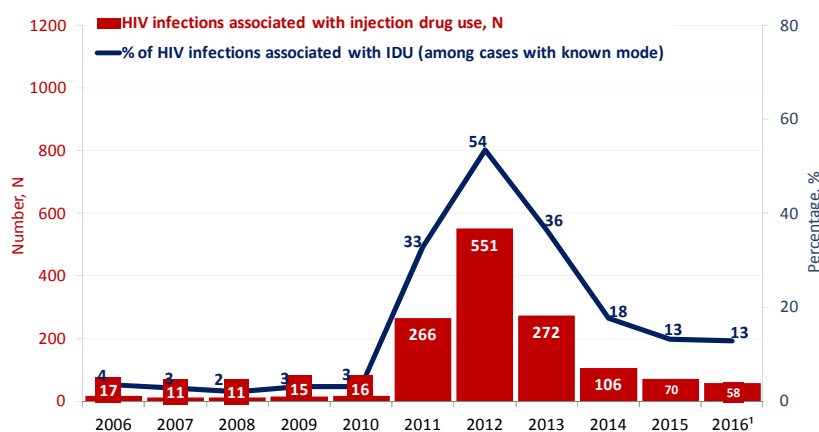


Fig. Trends in the number and proportion of HIV notifications associated with injection drug use in Greece

Source: Hellenic Centre of Disease Control & Prevention



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Fig. Trends in the number of syringes distributed and the number of syringes per estimated current PWID in Athens

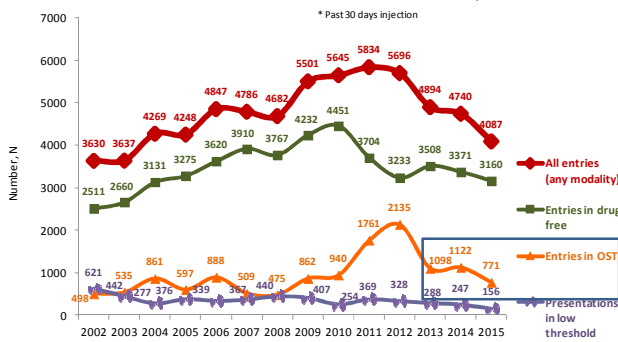
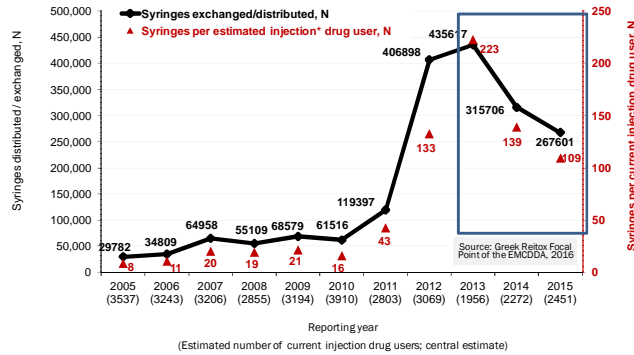


Fig. Trends in the number of treatment entries in Greece, total and by treatment modality
Source: Greek FP

ARISTOTLE enriched data on HCV prevalence by including PWID from wider networks in Athens

Based on treatment entry data:

- Antibody prevalence has been consistently **higher among those with injection careers ≥2 years**, compared to 'new' injectors
- Trend in antibody prevalence among **new injectors parallels that of 'old'**, but fluctuations are sharper among 'new' injectors, perhaps associated with their small Ns

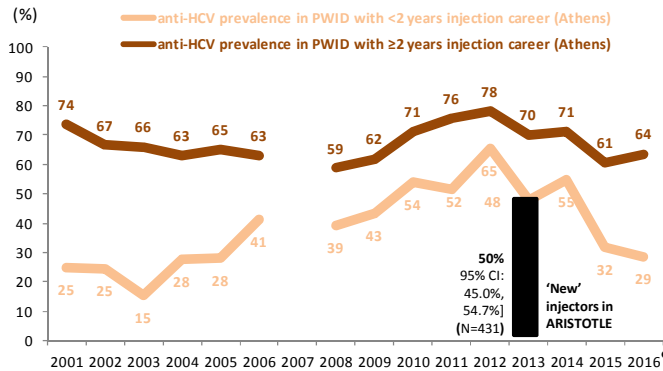


Fig. Trends in the prevalence of anti-HCV among PWID entering drug services in Athens, by injection careers
Source: DRID data of Greek Reitox Focal Point of the EMCDDA; Sympa et al (poster) 2017



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• 2016 data are preliminary, not to be cited

ARISTOTLE data allowed the direct measurement of also HCV incidence among 'new' PWID in Athens

Infectious disease:	HCV
Sample / data:	Recent (past 12 months) PWID and <u>≤2 years injection history</u> Participants of the 5-round RDS of the ARISTOTLE program N = 431
Period:	2012-2013
Type of measurement:	Direct, longitudinal follow up of PWID who where initially negatives and seroconverted during the program
Seroconversion time:	Mid-point between last negative and fist positive test
# risk years:	28.4
# seroconversions:	16
Incidence rate:	56.3 infections per 100 person years

Source: Sypsa et al 2017 (poster EASL)



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Focal point data considered in model-derived estimations

- **HCV antibody prevalence** (stratified) (DRID)
- Estimations of **HRIDU population size** (HRDU)
- Prevalence of **syringe sharing** among PWID (TDI / DRID)
- **Age of onset** of injecting (TDI / DRID)
- **Duration** of injection careers (TDI / DRID)
- Drug related **deaths** (DRD)
- **NSP coverage** (Responses & HRDU)
- **OST coverage** (Responses & HRDU)
- **Length of stay in OST** (Treatment data)



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A possible outbreak of HCV infections among PWID in Athens from 2009 through 2011, followed by a decline in incident cases in 2012 and stability thereafter

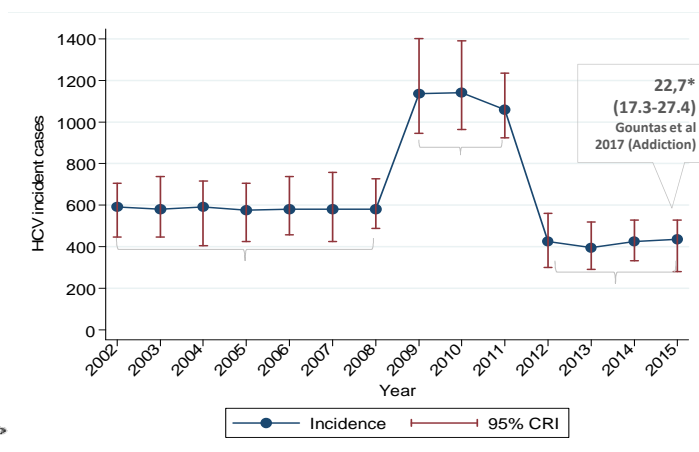


Fig. Trend in the estimated number of HCV incident cases among PWID in Athens based on a dynamic disease transmission model

Source: Gountas et al 2017 (oral present.)



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Antibody prevalence grew together with the growth of the epidemic and after the number of the incident cases started to fall

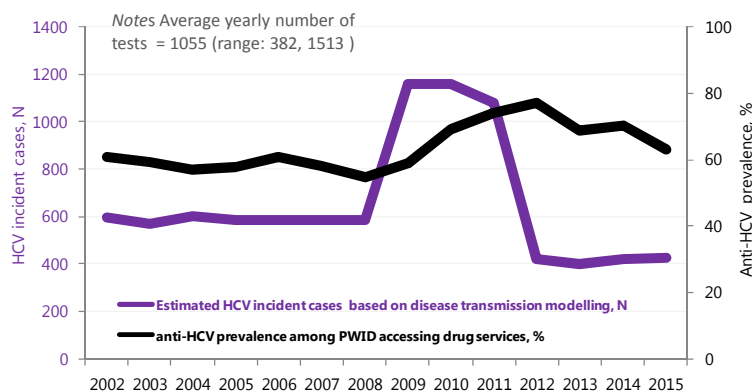


Fig. Trends in the estimated number of HCV incident cases among PWID and antibody prevalence among PWID accessing treatment services in Athens

Source: Adapted from Gountas et al 2017 (oral presentation); Greek Reitox Focal Point of the EMCDDA



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Higher-risk injecting behaviour has seemingly taken place prior to the HIV outbreak among PWID in Athens in 2011

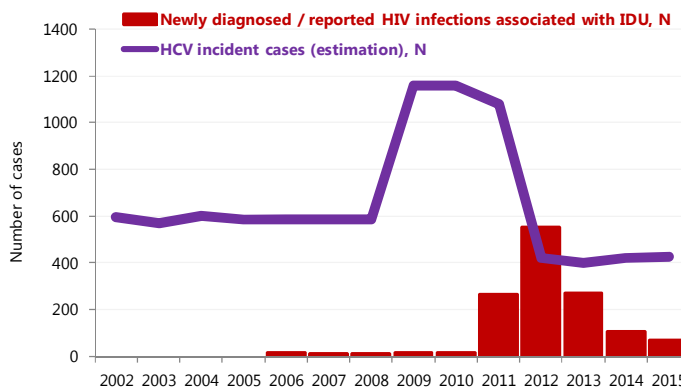


Fig. Trends in the estimated number of HCV incident cases among PWID in Athens and number of newly diagnosed / reported HIV cases associated with injection drug use in Greece

Source: Adapted from Gountas et al 2017 (oral presentation); Adapted from Hellenic Centre of Disease Control & Prevention



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Notes. Almost all HIV cases were reported in Athens

Four key points

1. Strong indications for **reductions in prevalence and incidence of HIV and HCV infections** among PWID in Athens in the recent years
2. Positive trends likely **associated with the impact of interventions** and the resulting behavioural changes towards less risky injection and sexual routines
3. **Infection risks are by no means eliminated** in this population (e.g., ongoing economic recession, poverty, social exclusion and lack of social support, discontinuation of interventions)
4. **New model-derived estimations of incidence draw on focal point data and** provide new insights about the course of the epidemics among PWID in Athens



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TDI / DRID data — A valuable tool for measuring / estimating incident infections

Strengths

- Annual samples
- Core and optional DRID and TDI variables
- High coverage (units and entries)
- Not intervention-type programs

Weaknesses

- Biased sample (e.g, PWID interested in treatment, structural barriers in accessing services)
- Small sample sizes of recurrent entries
- No measures about time / year of infection
- Missing serological data owing to delays in testing

Opportunities

- *Direct measurement of incidence:* Identify PWID who record multiple presentations in treatment services over a period of 15 years. Plus, possibility to assess risk factors for seroconversion
- *Model-derived estimations:* Feed in with data on important parameters (e.g., high risk injection use, injection careers, sharing partners etc)



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Thank you for your attention!

Cited work

- Gountas, I., Sypsa, V., Anagnostou, O., Martin, N., Vickerman, P., Kafetzopoulos, E., et al. (2017). Treatment and primary prevention in people who inject drugs for chronic hepatitis C infection: is elimination possible in a high-prevalence setting? *Addiction*, DOI: 10.1111/add.13764.
- Hatzakis, A., Sypsa, V., Paraskevis, D., Nikolopoulos, G., Tsiara, C., Micha, K., et al. (2015). Design and baseline findings of a large-scale rapid response to an HIV outbreak in people who inject drugs in Athens, Greece: the ARISTOTLE programme. *Addiction*, 110(9), 1453-1467.
- Sypsa V, Vickerman V, Wiessing L, Malliori M, & Hatzakis A. High levels of transmission of HCV infection among people who inject drugs in Greece (poster presented at EASL the International Liver Congress, Amsterdam 19-23 April 2017)
- Sypsa, V., Psychogiou, M., Paraskevis, D., Nikolopoulos, G., Tsiara, C., Paraskeva, D., et al. (2017). Rapid decline in HIV incidence among persons who inject drugs during a fast-track combination prevention program after an HIV outbreak in Athens. *The Journal of Infectious Diseases*, doi: 10.1093/infdis/jix100.

Indicator 'Drug Related Infectious Diseases', Greece



Greek Reitox Focal Point of the EMCDDA
at the **Athens University Mental Health Research Institute**

Contact person:

Anastasios Fotiou, PhD
University Mental Health Research Institute (UMHRI)
2, Soranou tou Efessiou, st.
PO Box 66 517, 156 01, Papagou Athens Greece
E: afotiou@ektepn.gr
T: +302106536902
F: +302106537273